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PLANKTON DIATOM ASSEMBLAGES IN LAKE MICHIGAN

E. F. Stoermer, et al

Michigan University
Ann Arbor, Michigan

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PLANKTON DIATOM ASSEMBLAGES IN LAKE MICHIGAN

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Sunfish	Lepomis gibbosus
Bullfrog	Rana catesteiana
Spotted salamander	Ambystoma maculatum

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The various elements of Lake Michigan plankton diatom flora, their seasonal cycles, and history of changes were determined and genera and species are listed. Absolute frequency, relative frequency, and contribution to diversity of each taxon were computerized. Occurrence of the different entities were recorded: those associated with certain water quality conditions; constituents of only extremely oligotrophic floras, rapidly replaced in disturbed portions of the lake; those more tolerant of changing conditions but rapidly reduced in abundance with extensive chemically measurable changes; other entities seemingly favored by slight increases in trophic level, flourishing in moderately disturbed portions of the lake, but declining when pollution increases; those formerly able to thrive only in naturally eutrophic estuaries and inshore areas, favored by increasing pollution and now flourishing in highly disturbed open lake areas; the final general group of dominant plankton species including those taxa, apparently not able to live in the original conditions of Lake Michigan but introduced following pollution. All of the plankton diatoms associated with extreme water quality degradation in the Great Lakes system are now present in Lake Michigan, indicating critical pollution levels. (Jones-Wisconsin)

Abstractor E. S. Jones | Institution Wisconsin Univ, Madison

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PLANKTON DIATOM ASSEMBLAGES IN LAKE MICHIGAN

by

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The University of Michigan

for the

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INTRODUCTION

The flora of the Laurention Great Lakes has lain before the scientific public as an unaccepted challenge for nearly 300 years. Until relatively recent times the very size of these bodies of water has discouraged their investigation, as the average investigator lacked the necessary physical resources to mount an effective attack upon the problem. As a result, what knowledge we now have at hand has largely been gathered either through short-term studies of the nearshore flora, often conducted by interested amateurs, or as an adjunct to practically oriented research in fisheries and water quality. With the increasingly apparent necessity to deal with the ecology of the lakes if they are to be preserved in a condition useful to man, this lack of orderly progress, if compared to such thoroughly investigated areas as the terrestrial flora, begins to bear bitter fruit.

The dominant organisms in all of the Great Lakes, at least in their pristine condition, are the diatoms. The investigation reported here is an attempt to more fully document the plankton diatom flora of one of the Great Lakes, Lake Michigan. Over the past three years about 1000 collections, both of the modern flora and of preserved collections dating back to about 1880, have been examined. Although the primary emphasis has been the determination of the species present, considerable effort has been devoted to determining the relative abundance of the various elements of the flora, their seasonal cycles, and the history of the changes in the flora during the period of record. Patently none of these objectives will be fulfilled by any single investigation. It is hoped, however, that the results of this research will stimulate others to carry on this general area of research to fruitful conclusions and that the conclusions reached will prove useful to researchers in other ancillary fields.

PREVIOUS INVESTIGATIONS

Probably the earliest traceable collections from the Great Lakes area that have been preserved to the present day are those of Ehrenberg (1854-56). The earliest reports dealing with Lake Michigan phytoplankton are the lists published by Briggs (1872) and Thomas and Chase (1887). All of these persons were more or less amateur diatomists although they published extensively in the finest tradition of the gentleman amateur scientist of that day.

Further records of the Lake Michigan flora are contained in the voluably reported results of the fisheries investigations of Forbes (1882a, 1882b, 1882c, 1883), Ward (1896) and Thompson (1896).

In 1904 Chase published a list of Michigan diatoms including many from Lake Michigan. Some records of the flora of the extreme southern end of Lake Michigan are included in the reports of the water quality investigations of Leighton (1907) and Baylis and Gerstein (1929). Although containing no records of the algal flora, the report of a similar investigation by Crohurst and Veldee (1927) gives an excellent account of the general conditions in the Chicago area at the time.

In 1927 Eddy published his investigations of the plankton of Lake Michigan, and further records are contained in his later general work (1934). Ahlstrom's (1936) report contains the first account of systematic collections of the offshore plankton. On the other hand, Skvortzow's (1937) never-completed account of the Lake Michigan diatoms is entirely based on material from the water supply of the city of Chicago. In 1944 Lackey published an account of the phytoplankton of the southern end of Lake Michigan.

A number of reports (Daily 1938; Damann 1941; Griffith 1955) have emanated from the botanical laboratories of Northwestern University. The work of Daily and Damann are of particular interest in that their collections are carefully preserved and available for study. Damann later (1945, 1960) published reports based on the plankton collections of the Chicago filtration plant. Although not effectively published, numerous records are available from this installation. Of particular interest to this investigation are the reports of Vaughn (1961, 1962).

Records of the Lake Michigan plankton at two locations have been gathered by the National Water Quality Network (1960, 1961, 1962) and are reported in publications by Williams (1962, 1964) and Williams and Scott (1962). Other recent publications include those of Stoermer and Kopczynska (1967), Stoermer (1967, 1968), and Holland (1968, 1969).

Patrick and Reimer's treatise on the diatoms of the United States (1966) also contains numerous records from Lake Michigan, although their practice of recording distributions from broad geographic areas makes it difficult to determine the exact distribution of the species in question.

SAMPLING

The majority of samples reported in this study were taken by means of a 1/2 meter #20 plankton net. Where water depths permitted, the sampling procedure was a vertical haul from approximately 2 m off the bottom to the surface. In nearshore areas and channels it was necessary to resort to oblique tows. While the limitations of this sampling method are well known and recognized, it is the only method that allows direct comparison between modern samples with the previously gathered samples available from Lake Michigan. It is perhaps important to emphasize that, even in this limited context, complete uniformity was not achieved. The samples of Thomas and Chase were, in most instances, taken directly from the water supply of the city of Chicago by placing several layers of muslin directly over a water tap and thus straining out sufficient quantities of algae for the preparation of permanent slides. The absolute efficiency of this sampling method remains unknown and is not amenable to modern testing. The samples of Daily, Damann and Ford were apparently taken nearshore by means of a horizontal tow of a small diameter, hand cast net.

All material examined is listed in appendix "A." The modern collections, presently housed in the author's collection at the Great Lakes Research Division, University of Michigan, consist of a preserved sample of uncleaned material, a sample of cleaned material, and duplicate prepared slides. In most instances similar material of the historic collections is available at the Academy of Natural Sciences, Philadelphia. In some cases, particularly with the older samples, only prepared slides exist, the older material having been lost or not preserved by the original investigator.

PREPARATION AND ANALYSIS PROCEDURES

All material gathered in the present investigation was preserved in the field, immediately after collection, in buffered formalin. After being received in the laboratory the samples were split and one subsample was set aside, without further treatment as a reference collection. The other subsample was cleaned, by standard methods for diatom taxonomy (Patrick and Reimer 1966). Duplicate prepared slides were made from each cleaned subsample and the remaining material was preserved in ethanol and set aside as a reference collection of cleaned material. The prepared slides are strewn mounts, care being taken that the specimens are evenly distributed and present in appropriate density to facilitate subsequent identification and counting.

After preparation, all slides were examined to determine that processing had been satisfactory and to determine the species present. All entities reported are represented by at least one specimen, marked by a circle engraved on the cover of the appropriate permanent slide, included in the author's concept of the taxon. In order to facilitate systematic treatment, photographic illustrations were made of each entity discovered in the course of the investigation and these illustrations, together with a short description of the taxon and the slide number and location coordinates of voucher specimens, are maintained in a permanent file. In all instances optical equipment used for examination of the slides and for taxonomic determinations consisted of a Leitz Ortholux microscope fitted with a full oil immersion system giving a N. A. of at least 1.30.

In the case of slides selected for detailed population analysis, counts were made, using the same optical equipment, either of the entire slide, in the case of the offshore samples, or of 1/2 of the slide, in the case of harbor or nearshore samples. The distribution information given in the systematic results are based on these counts, except in the case of entities which did not occur on the slides counted, in which case the number of a slide known to contain the entity in question is given.

Computor generated listing of the absolute frequency, the relative frequency and the contribution to diversity of each taxon in the slides counted, which cost considerations prohibit reproducing in this report, are available. The calculated diversity estimates for each assemblage investigated are given in Appendix "A."

SYSTEMATIC RESULTS

In the following section a tabulation of the entities encountered in the investigation is given. The genera are listed in alphabetical order and the species of each genus are listed in alphabetical order following. Short descriptions are given for the species of the major plankton genera, including the morphological measurements of specimens in populations from Lake Michigan. Similar description of the range of variation of other populations awaits thorough investigation of the benthic flora.

Because of the time limitations on the completion of this project, it was necessary to proceed with population analyses before reasonably complete systematic treatment of the assemblages could be completed. For this reason a large number of morphologically distinct entities which could not be identified with a recognized taxon were set aside and given a numerical designation. Further research during the course of the investigation has allowed us to determine the relationships of the majority of these, but there remains a significant number which we have not been able to identify. These entities are treated as species *incertae sedis* and are listed at the end of each genus. In some instances further research will show these entities to belong to recognized taxa. Some of them undoubtedly belong to undescribed species. These eventually will be described in the appropriate literature. In many instances determinations await investigation of the benthic flora in order that sufficient specimens be obtained to allow determination of the range of variation of the taxon. Finally a certain number probably are abnormal specimens which can never be satisfactorily determined.

Following the systematic information, a list of occurrences of the species in question in the populations counted is given. This information is presented in the following format: 1) the collection number, 2) the station designation, 3) the date of collection, 4) the proportion of the entity in question in the collection. In cases where a particular entity did not occur in the collections subjected to detailed population analysis, the number of a voucher slide known to contain the entity is given.

Genus *Achnanthes* Bory
Bory, Dict. Class. Hist. Nat., 1:79-80. 1822.

The majority of species of the genus *Achnanthes* find their primary habitat in periphyton communities. Most of the specimens observed in plankton collections from Lake Michigan are probably derived from such communities and their occurrence in the plankton is accidental. Certain species are, however, secondarily planktonic in that they regularly grow attached to some of the larger species of euplanktonic algae. A notable example of this tendency is *A. clevei*, which is regularly noted in plankton collections. It is probable that many of the smaller members of the genus adopt this habit of growth under certain conditions.

Achnanthes affinis Grun.

Achnanthes affinis Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):20. 1880.

1 AFFINIS TOT NO OF STATIONS 101

146973	CH		1876	0.02362	146510	CH		0C1945	0.00109	146917	CH		12JA1946	0.00055
146914	CH		19AP1946	0.00107	146523	CH		22ND1946	0.00219	146909	CH		MR1947	0.00455
146918	CH		4MY1947	0.03698	146519	CH		5JN1947	15.09082	146907	CH		JL1947	0.00049
146913	CH		6AU1947	0.07321	146522	CH		21AU1947	0.01842	146758	EV		5JN1937	0.01070
146770	EV		9JL1937	0.00598	146764	EV		17JL1937	0.00806	146757	EV		25JL1937	0.01444
146767	EV		14AU1937	0.00990	146763	EV		23AU1937	0.04058	146760	EV		22SE1937	0.00492
146750	EV		24SE1937	0.00642	146748	EV		13CC1937	0.08540	146767	EV		27DC1937	0.05416
146749	EV		12MR1938	0.01214	146768	EV		16MR1938	0.05880	146762	EV		18MR1938	0.08822
146766	EV		14DE1938	0.01584	1 1226	C 7		16MY1964	0.01522	1 1240	D 6		10JN1964	0.00153
1 1243	E 6		13JN1964	0.00209	1 1244	F 1		11JN1964	0.00219	1 1245	F 2		11JN1964	0.00692
1 1255	D 5		15JL1964	0.00257	1 1258	F 1		8JL1964	0.16518	1 1259	F 2		6JL1964	0.01859
1 1260	F 3		6JL1964	0.00784	1 1443	B 6		16AU1964	0.00198	1 1267	D 6		18AU1964	0.00216
1 1268	E 2		15AU1964	0.04102	1 1270	F 1		10AU1964	0.63717	1 1272	C* 1		10SE1964	0.00410
1 1279	E 1		16SE1964	0.03534	1 1280	E 2		16SE1964	0.00681	1 1285	F 1		15SE1964	1.22299
1 1286	F 2		15SE1964	0.01095	1 1287	F 3		15SE1964	0.01001	1 1302	E 5		13DC1964	0.00405
1 1303	E 6		13CC1964	0.00960	1 1304	F 1		11CC1964	0.01729	1 1305	F 2		11DC1964	0.02933
1 1306	F 3		11CC1964	0.01940	1 1308	C 7		6ND1964	0.00608	1 1322	E 6		7ND1964	0.00333
1 1344	C 3		25AP1967	0.00165	1 1652	E 2		14JL1967	0.03619	1 1505	A 4		28AU1967	0.00515
1 1512	E 3		1SE1967	0.00393	1 1535	C 7		20SE1967	0.00322	1 1536	E 2		24SE1967	0.01091
1 1537	F 3		24SE1967	0.00431	1 1538	E 5		23SE1967	0.01657	1 1540	C 5		4DC1967	0.00496
1 1541	E 2		11DC1967	0.00532	1 1542	E 3		11DC1967	0.00509	1 1543	E 5		10DC1967	0.02195
1 1381	GS 5		10MY1967	0.00239	1 1384	GS 8		10MY1967	0.00370	1 1387	GS11		12MY1967	0.03169
1 1389	GS13		12MY1967	0.01031	1 1390	GS14		12MY1967	0.00587	1 1391	GS15		12MY1967	0.00479
1 1392	GS16		12MY1967	0.00616	1 1394	GS18		13MY1967	0.00344	1 1554	GS 1		3DC1967	0.01067
1 1555	GS 2		3DC1967	0.01766	1 1557	GS 4		3DC1967	0.02616	1 1559	GS 7		4DC1967	0.00350
1 1560	GS 8		4DC1967	0.00945	1 1562	GS10		5DC1967	0.00247	1 1565	GS13		5DC1967	0.01521
1 1567	GS15		5DC1967	0.00318	1 1569	GS17		5CC1967	0.00297	1 1571	GS19		6DC1967	0.00234
1 1573	GS21		6DC1967	0.00560	1 1574	GS22		6DC1967	0.14094	1 1575	GS28		6DC1967	0.00516
1 1524	MI 1		20SE1967	0.02189	1 1546	LU 1		2CC1967	0.04003	1 1521	SH 1		18SE1967	0.00577
1 1523	MA 1		19SE1967	0.01845	1 1526	MC 1		20SE1967	0.01707	1 1530	FR 1		24SE1967	0.03000
1 1545	WL 1		2CC1967	0.00676	1 1549	MC 1		4CC1967	0.02741	1 1552	SH 1		4DC1967	0.00660
1 1550	MA 1		5DC1967	0.02478	1 1426	MS 2		25MY1967	0.05249	1 1350	BH 2		19AP1967	0.00220
1 1402	TR 2		6MY1967	0.01083	1 1352	KW 2		21AP1967	0.00859	1 1403	CA 2		10MY1967	1.42540
1 1404	PG 2		10MY1967	0.02541	1 1405	ES 2		12MY1967	0.01290	1				

Achnanthes biasolettiana (Kütz.) Grun.

Synedra biasolettiana Kützing, Bacill., p. 63, pl. 3, fig. 22. 1844.
Achnanthes biasolettiana (Kütz.) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):22. 1880.

2 ACBIASCL TOT NO OF STATIONS 8

146743	EV		2CJN1937	0.00428	146762	EV		18MR1938	0.04411	1 1285	F 1		15SE1964	0.01165
1 1389	GS13		12MY1967	0.00258	1 1565	GS13		5DC1967	0.04056	1 1574	GS22		6DC1967	0.00863
1 1405	ES 2		12MY1967	0.01290	1 1407	SP 2		14MY1967	0.00597	1				

Achnanthes calcar Cleve

Achnanthes calcar Cleve, Acta Fauna Fl. Fennica, 8(2):51, pl. 3, fig. 8. 1891.

3 ACCALCAR TOT NO OF STATIONS 4

(1560	GS 8	9DC1967	C.CC472)	(1565	GS13	5CC1967	0.00507)	(1527	TR 1	2CSE1967	C.CC629)
(1550	MR 1	5DC1967	0.01239)	(							

Achnanthes clevei Grun.

Achnanthes clevei Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):21. 1880.

This species is quite common in plankton collections from Lake Michigan. As previously noted, it is often observed growing attached to some of the larger euplanktonic algae.

4 ACCLEVEI TOT NO OF STATIONS 58

(3540	CH	11MY1879	0.00466)	(46770	EV	9JL1937	0.00596)	(46750	EV	24SE1937	C.CC471)
(46762	EV	18MR1938	0.02206)	(1240	D 6	10JN1964	0.00153)	(1258	F 1	6JL1964	C.CC236)
(1268	E 2	15AU1964	0.00274)	(127C	F 1	10AU1964	0.00272)	(1279	E 1	16SE1964	C.CC393)
(1285	F 1	15SE1964	0.04659)	(1300	E 3	13OC1964	C.00358)	(1306	F 3	11OC1964	C.00277)
(1316	D 6	9NO1964	0.00378)	(1320	E 4	7NO1964	0.00207)	(1323	F 1	6NO1964	C.CC139)
(1340	C 7	28MR1967	0.00145)	(1343	A 6	19AP1967	C.00069)	(1346	C 7	21AP1967	C.CC134)
(1435	C 7	13JN1967	0.00316)	(1512	E 3	15E1967	C.00393)	(1536	E 2	24SE1967	C.00273)
(1542	E 3	11OC1967	C.00509)	(1388	GS12	12MY1967	0.00603)	(1389	GS13	12MY1967	C.CC258)
(1392	GS16	12MY1967	0.00308)	(1394	GS18	13MY1967	0.00172)	(1395	GS19	13MY1967	C.00117)
(1554	GS 1	30C1967	0.00712)	(1555	GS 2	30C1967	0.00353)	(1557	GS 4	30C1967	C.C1495)
(1565	GS13	5DC1967	0.06592)	(1566	GS14	5CC1967	0.00183)	(1567	GS15	5DC1967	C.CC953)
(1569	GS17	5DC1967	0.00149)	(1571	GS19	6DC1967	C.00059)	(1572	GS20	6DC1967	C.CC090)
(1573	GS21	6DC1967	0.00224)	(1574	GS22	6DC1967	0.05753)	(1575	GS28	6DC1967	C.0C129)
(1544	MU 1	2DC1967	0.00238)	(1546	LU 1	20C1967	C.05002)	(1526	PO 1	20SE1967	C.01138)
(1527	TR 1	2CSE1967	0.11321)	(1528	SB 1	20SE1967	0.02888)	(1529	KW 1	20SE1967	C.08394)
(1530	FR 1	24SE1967	0.07001)	(1545	WL 1	20C1967	0.04730)	(1548	CA 1	30C1967	C.C1272)
(1551	ES 1	5DC1967	0.02396)	(1550	MR 1	5DC1967	1.58592)	(1553	SG 1	6DC1967	C.C2203)
(1426	MS 2	29MY1967	0.16798)	(1417	HO 2	22MY1967	0.00748)	(1350	BH 2	19AP1967	0.07929)
(1399	PW 2	5MY1967	C.CC68C)	(1354	GH 2	25AP1967	0.00173)	(14C4	MG 2	10MY1967	C.C5081)
(1407	SM 2	14MY1967	0.0C597)	(							

Achnanthes clevei var. *rostrata* Hust.

Achnanthes clevei var. *rostrata* Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 204, fig. 295. 1930.

This entity has the same growth habit as the nominate variety. Specimens from Lake Michigan are usually in the upper size range according to descriptions given by most authors (see Patrick and Reimer 1966).

5 ACCLEVVR TOT NO OF STATIONS 74

(6C973	CH	1876	0.04724)	(354C	CH	11MY1879	0.00466)	(3541	CH	1FE1881	C.CC978)
(46921	CH	23NO1945	0.00065)	(46917	CH	12JA19[illegible]	0.00083)	(46915	CH	20FE1946	0.01138)
(46914	CH	19AP1946	0.0C107)	(46524	CH	10MY1[illegible]	0.00071)	(46923	CH	22NO1946	C.CC437)
(46920	CH	20DE1946	0.00062)	(46905	CH	JA1947	0.00245)	(46909	CH	MR1947	C.02732)
(46906	CH	MY1947	0.00398)	(46519	CH	5JN1947	C.00303)	(46907	CH	JL1947	C.00099)
(46922	CH	21AU1947	C.0C097)	(46758	EV	5JN1937	0.00713)	(46757	EV	25JL1937	C.0C481)
(46747	EV	1AU1937	0.00248)	(46763	EV	23AU1937	C.02029)	(46752	EV	15SE1937	C.C6530)
(46760	EV	22SE1537	0.00492)	(46744	EV	6DC1937	0.00975)	(46748	EV	13OC1937	C.06405)
(46767	EV	27OC1937	0.0C387)	(46749	EV	12MR1938	0.01214)	(46768	EV	16MR1938	0.02940)
(46762	EV	18MR1938	0.08822)	(1244	F 1	11JN1964	0.00219)	(1245	F 2	11JN1964	0.0C346)
(1246	F 3	11JN1964	0.0C598)	(1258	F 1	6JL1964	0.00708)	(1268	E 2	15AU1964	C.00547)
(1270	F 1	1CAU1964	0.0C272)	(1285	F 1	15SE1964	0.01165)	(1303	E 6	13OC1964	C.0C560)
(1305	F 2	11OC1964	0.00173)	(1511	E 2	1SE1967	0.00307)	(1512	E 3	1SE1967	C.00785)
(1536	E 2	24SE1967	0.00273)	(1541	E 2	11OC1967	C.00532)	(1542	E 3	11OC1967	C.01526)
(1385	GS 9	10MY1967	0.0C235)	(1387	GS11	12MY1967	0.00792)	(1388	GS12	12MY1967	C.01810)
(1389	GS13	12MY1967	0.00516)	(1390	GS14	12MY1967	C.01174)	(1392	GS16	12MY1967	0.00308)
(1393	GS17	13MY1967	0.0C548)	(1394	GS18	13MY1967	0.00516)	(1396	GS20	13MY1967	C.00074)
(1554	GS 1	30C1967	0.00356)	(1557	GS 4	30C1967	0.00374)	(1565	GS13	5DC1967	C.20789)
(1567	GS15	5DC1967	0.01270)	(1568	GS16	5DC1967	0.00144)	(1569	GS17	5DC1967	C.00297)
(1570	GS18	5DC1967	0.0C992)	(1571	GS19	6DC1967	0.00176)	(1572	GS20	6DC1967	C.CC090)
(1574	GS22	6DC1967	0.05753)	(1544	MU 1	2DC1967	0.00238)	(1546	LU 1	20C1967	C.06502)
(1527	TR 1	2DSE1967	0.03774)	(1529	KW 1	20SE1967	0.01199)	(1530	FR 1	24SE1967	C.C3000)
(1545	WL 1	20C1967	0.05406)	(1550	MR 1	5DC1967	0.04956)	(1553	SG 1	6DC1967	C.C2938)
(1426	MS 2	29MY1967	0.01050)	(14C2	TR 2	6MY1967	0.00541)	(1354	GH 2	25AP1967	C.0C345)
(1404	PO 2	1CMY1967	0.01270)	(1405	ES 2	12MY1967	0.00645)	(			

Achnanthes conspicua A. Mayer

Achnanthes conspicua A. Mayer, Bayrisch Kryptog. Forsch., 1:198, pl. 6, fig. 9, 10. 1919.

6 ACCONSPI TOT NO OF STATIONS 14

(46921	CH	23NO1945	0.00065)	(46768	EV	16MR1938	0.01470)	(1279	E 1	16SE1964	C.00393)
(1511	E 2	1SE1967	0.00307)	(1565	GS13	5OC1967	0.00507)	(1569	GS17	5OC1967	0.00149)
(1574	GS22	6CC1967	0.00288)	(1947	MS 1	20C1967	0.00798)	(1526	PO 1	20S*1967	C.0C569)
(1527	TR 1	20SE1967	0.00629)	(1530	FR 1	24SE1967	0.01000)	(1550	PR 1	5OC1967	C.23541)
(1426	MS 2	29MY1967	0.0105C)	(1350	BH 2	19AP1967	0.02863)	(			

Achnanthes conspicua var. *brevistriata* Hust.

Achnanthes conspicua var. *brevistriata* Hustedt*in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 10, p. 202, fig. 292. 1930.

Coll: 983

Achnanthes deflexa Reim.

Achnanthes deflexa Reimer *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:256, pl. 16, figs. 16-20. 1966.

7 ACCEFLEX TOT NO OF STATIONS 29

(46758	EV	5JN1937	0.04993)	(46743	EV	20JN1937	0.00428)	(46764	EV	17JL1937	C.CC806)
(46757	EV	25JL1937	0.02407)	(46763	EV	23AU1937	0.08117)	(46767	EV	27OC1937	0.0C774)
(46768	EV	16MR1938	0.0147C)	(46762	EV	18MR1938	0.02206)	(1244	F 1	11JN1964	C.CC110)
(1245	F 2	11JN1964	0.00346)	(1258	F 1	6JL1964	0.00472)	(1260	F 3	6JL1964	0.CC191)
(1285	F 1	15SE1964	0.00582)	(1387	GS11	12MY1967	0.01188)	(1398	GS22	14MY1967	C.0C304)
(1562	GS10	5OC1967	0.00247)	(1527	TR 1	20SE1967	0.01887)	(1530	FR 1	24SE1967	C.01000)
(1545	WL 1	20C1967	0.01351)	(1550	MR 1	5OC1967	0.14868)	(1553	SG 1	6OC1967	C.CC734)
(1428	MU 2	29MY1967	0.00301)	(1426	MS 2	29MY1967	0.04199)	(1350	BH 2	19AP1967	C.CC881)
(1401	MO 2	6MY1967	0.00588)	(1403	CA 2	10MY1967	0.02615)	(1404	MO 2	10MY1967	C.C3811)
(1405	ES 2	12MY1967	C.01935)	(1407	SP 2	14MY1967	0.00597)	(			

Achnanthes delicatula (Kütz.) Grun.

Achnanthidium delicatulum Kützing, Bacill., p. 75, pl. 3, fig. 21. 1844.
Achnanthes delicatula Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):22. 1880.

8 ACDELICG TOT NO OF STATIONS 1

(1550	PR 1	5OC1967	0.03717)	(

Achnanthes detha Hohn and Hellerm.

Achnanthes detha Hohn and Hellerman, Trans. Amer. Micr. Soc., 82(3):274, pl. 2, figs. 7-8. 1963.

9 ACDETHAQ TOT NO OF STATIONS 2

(1550	PR 1	5OC1967	0.02478)	(1404	MO 2	10MY1967	0.01270) (

Achnanthes dispar Cleve

Achnanthes dispar Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):52, pl. 3, figs. 2-3. 1891.

10 ACDISPAR TOT NO OF STATIONS 1

(1388	GS12	12MY1967	0.00603)	(									

Achnanthes exigua Grun.

Achnanthes exigua Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):21. 1880.

11 ACEXICUA TOT NO OF STATIONS 23

146767	EV	27DC1937	0.00387)	146762	EV	18PR1938	0.02206)	(1258	F 1	6JL1964	C.CC236)
(1268	E 2	15AU1964	0.00274)	(1341	A 3	19AP1967	C.00108)	(1541	E 2	11DC1967	0.01064)
(1392	GS1A	12MY1967	0.00308)	(1397	GS21	13MY1967	C.00065)	(1555	GS 2	30C1967	C.0C353)
(1565	GS13	5DC1967	0.01521)	(1571	GS19	6DC1967	C.00059)	(1573	GS21	6DC1967	C.00117)
(1575	GS28	6DC1967	0.00129)	(1546	LU 1	2DC1967	C.00500)	(1529	MN 1	20SE1967	C.03598)
(1551	ES 1	5DC1967	0.02396)	(1550	MR 1	5DC1967	C.07434)	(1553	SG 1	6DC1967	C.02203)
(1351	MI 2	21AP1967	0.00310)	(1417	MQ 2	22MY1967	0.00374)	(1350	BH 2	19AP1967	C.00441)
(1404	MQ 2	10MY1967	0.06352)	(1407	SM 2	14MY1967	0.00597)	(			

Achnanthes exigua var. *heterovalva* Krasske

Achnanthes exigua var. *heterovalva* Krasske, Bot. Arch., 3(4):193, figs. 9a-b. 1923.

12 ACEXIGVH TOT NO OF STATIONS 6

(1544	MU 1	2DC1967	0.00238)	(1522	BM 1	18SE1967	C.00365)	(1545	NL 1	2DC1967	C.00676)
(1549	MQ 1	4DC1967	0.01370)	(1550	MR 1	5DC1967	1.35051)	(1350	BH 2	19AP1967	0.02863)

Achnanthes exigua var. *heterovalva* fo. *semiaperta* Guer.

Achnanthes exigua var. *heterovalva* fo. *semiaperta* Guermeur, Cat. Inst. Français d'Afrique Noire, 12:32, pl. 2, figs. 3c, 3i, 3j. 1954.

13 ACEXVHFS TOT NO OF STATIONS 3

146906	CH	MY1947	0.00064)	(1571	GS19	6DC1967	0.00117)	(1575	GS28	6DC1967	C.00129)

Achnanthes hauckiana Grun.

Achnanthes hauckiana Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):21. 1880.

14 ACHAUCKI TOT NO OF STATIONS 5

(1376	E 5	6MY1967	0.00281)	(1544	MU 1	2DC1967	0.00477)	(1417	MQ 2	22MY1967	C.00374)
(1350	BH 2	19AP1967	0.01101)	(1354	GH 2	25AP1967	0.00345)	(			

15 ACHAUCKO TOT NO OF STATIONS 1

(1305	F 2	11DC1964	0.00173)

Achnanthes hauckiana var. *rostrata* Schulz

Achnanthes hauckiana var. *rostrata* Schulz, Bot. Arch., 13:191, fig. 40. 1926.

16 ACHAUCVR TOT NO OF STATIONS 7

(1377	GS 1	9MY1967	0.00356)	(1544	MU 1	2DC1967	0.00238)	(1547	PS 1	2DC1967	C.00798)
(1520	MQ 1	18SE1967	0.00471)	(1545	NL 1	2DC1967	0.00676)	(1426	PS 2	25MY1967	C.02100)
(1350	BH 2	19AP1967	0.02203)	(							

Achnanthes hungarica (Grun.) Grun.

Achnanthidium hungaricum Grunow, Verh. Zool.-Bot. Ges. Wien, 13:146, pl. 4, figs. 8a-c. 1863.
Achnanthes hungarica (Grun.) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):20. 1880.

18 ACHUNGAR TOT NO OF STATIONS 4

(1342	A 4	15AP1967	0.00180)	(1417	MD 2	22MY1967	0.00374)	(1350	BH 2	19AP1967	0.01322)
(1406	GB 2	13MY1967	0.00270)	(							

Achnanthes lanceolata (Bréb.) Grun.

Achnanthidium lanceolatum de Brébisson *ex* Kützing, Sp. Alg. p. 54. 1849.
Achnanthes lanceolata (Bréb. *ex* Kütz.) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):23. 1880.

19 ACLANCEC TOT NO OF STATIONS 41

(46905	CH	JA1967	0.00123)	(46764	EV	17JL1937	0.01612)	(46757	EV	25JL1937	C.CC481)
(1317	E 1	6NO1964	0.00191)	(1408	A 3	23MY1967	0.00447)	(1410	A 6	24MY1967	C.CC564)
(1416	E 5	28MY1967	0.00219)	(1452	E 2	14JL1967	0.00213)	(1542	E 3	11OC1967	C.0C509)
(1555	GS 2	30C1967	0.00353)	(1559	GS 7	40C1967	0.00350)	(1571	GS19	60C1967	0.00059)
(1572	GS20	60C1967	0.00090)	(1574	GS22	60C1967	0.00288)	(1575	GS28	60C1967	C.00258)
(1544	MU 1	20C1967	0.00238)	(1546	LU 1	2CC1967	0.01501)	(1521	SH 1	18SE1967	0.00154)
(1522	BH 1	18SE1967	0.00365)	(1526	MD 1	20SE1967	0.01138)	(1527	TR 1	20SE1967	C.03774)
(1529	KW 1	2CSE1967	0.01199)	(1530	FR 1	24SE1967	0.01000)	(1545	WL 1	20C1967	C.01351)
(1549	MQ 1	4CC1967	0.01370)	(1551	ES 1	50C1967	0.00799)	(1550	MR 1	5CC1967	1.44963)
(1426	MS 2	29MY1967	0.08399)	(1427	LU 2	29MY1967	0.02421)	(1417	MD 2	22MY1967	C.00748)
(1418	SH 2	22MY1967	0.01555)	(1350	BH 2	19AP1967	0.17621)	(1402	TR 2	6MY1967	C.01083)
(1400	SB 2	6MY1967	0.01191)	(1352	KW 2	21AP1967	0.00859)	(1354	GH 2	25AP1967	C.00690)
(1403	CA 2	10MY1967	0.01308)	(1404	MQ 2	10MY1967	0.02541)	(1405	ES 2	12MY1967	C.01290)
(1406	GB 2	13MY1967	0.00539)	(1423	WA 2	25MY1967	0.00428)	(			

Achnanthes lanceolata var. *dubia* Grun.

Achnanthes lanceolata var. *dubia* Grunow *in*: Cleve and Grunow, K. Sven Vet.-Akad. Handl., Ny Följd, 17(2):23. 1880.

21 ACLANCVD TOT NO OF STATIONS 34

(1272	C* 1	1CSE1964	0.00410)	(1274	D 1	17SE1964	0.00469)	(1279	E 1	16SE1964	C.01178)
(1341	A 3	19AP1967	0.00325)	(1342	A 4	19AP1967	0.00361)	(1348	E 5	23AP1967	C.00137)
(1449	C 3	16JL1967	0.00382)	(1532	A 3	18SE1967	0.00329)	(1538	E 5	23SE1967	C.00552)
(1540	C 5	40C1967	0.00993)	(1541	E 2	11OC1967	0.01064)	(1542	E 3	11OC1967	C.01526)
(1398	GS22	14MY1967	0.00304)	(1554	GS 1	30C1967	0.01779)	(1558	GS 5	40C1967	C.00793)
(1559	GS 7	40C1967	0.00350)	(1571	GS19	60C1967	0.00293)	(1574	GS22	60C1967	C.00288)
(1544	MU 1	20C1967	0.00477)	(1547	MS 1	2CC1967	0.03194)	(1546	LU 1	20C1967	C.02501)
(1522	BH 1	18SE1967	0.00547)	(1526	MD 1	20SE1967	0.00569)	(1527	TR 1	20SE1967	C.00629)
(1529	KW 1	2CSE1967	0.02398)	(1530	FR 1	24SE1967	0.02000)	(1545	WL 1	20C1967	C.02703)
(1550	MR 1	50C1967	2.37889)	(1553	SG 1	60C1967	0.00734)	(1426	MS 2	29MY1967	C.39895)
(1417	MD 2	22MY1967	0.02243)	(1350	BH 2	19AP1967	0.38766)	(1354	GH 2	25AP1967	C.00173)
(1404	MQ 2	10MY1967	0.10163)	(							

25 ACLANCVR TOT NO OF STATIONS 4

(1264	C* 1	10AU1964	0.00193)	(1301	E 4	13OC1964	0.00442)	(1306	F 3	11OC1964	C.00277)
(1404	MQ 2	10MY1967	0.02541)	(							

Achnanthes lanceolata var. *elliptica* Cleve

Achnanthes lanceolata var. *elliptica* Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):51, pl. 3, figs. 10, 11. 1891.

22 ACLANCVE TOT NO OF STATIONS 10

(1342	A 4	15AP1967	0.00180)	(1449	C 3	16JL1967	0.00764)	(1452	E 2	14JL1967	C.00426)
(1533	A 4	19SE1967	0.00464)	(1538	E 5	23SE1967	0.00552)	(1384	GS 8	10MY1967	C.00185)
(1554	GS 1	30C1967	0.00712)	(1571	GS19	60C1967	0.00059)	(1573	GS21	60C1967	C.00112)
(1404	MQ 2	10MY1967	0.01270)	(							

Achnanthes lanecolata var. *haynaldii* (Schaarsch.) Cleve

Achnanthes haynaldii Schaarschmidt, Magyar Növenytani Lapok, 5(50):20. 1881. *Achnanthes lanceolata* var. *haynaldii* (Schaarsch.) Cleve, Diatomiste, 2(17): 99, pl. 7, figs. 14a-b. 1894.

23 ACLANCVH TOT NO OF STATIONS 1

(1565	GS13	5OC1967	0.00507)	(									

Achnanthes lanceolata var. *omissa* Reim.

Achnanthes lanceolata var. *omissa* Reimer *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:272, pl. 18, figs. 16, 17. 1966.

24 ACLANCVC TOT NO OF STATIONS 20

(1305	F 2	11OC1964	0.00173)	(1565	GS13	5OC1967	0.44620)	(1566	GS14	5OC1967	0.00367)		
(1567	GS15	5OC1967	0.00159)	(1569	GS17	5OC1967	0.00149)	(1573	GS21	6OC1967	0.00112)		
(1574	GS22	6OC1967	0.00575)	(1575	GS28	6OC1967	0.00129)	(1544	MU 1	2OC1967	0.00238)		
(1547	MS 1	2OC1967	0.01597)	(1524	MI 1	2OSE1967	0.02189)	(1521	SM 1	18SE1967	0.00577)		
(1550	MR 1	5OC1967	0.79296)	(1553	SG 1	6OC1967	0.00734)	(1428	PU 2	29MY1967	0.00301)		
(1427	LU 2	25MY1967	0.01211)	(1350	BM 2	19AP1967	0.01762)	(1402	TR 2	6MY1967	0.00541)		
(1354	GH 2	25AP1967	0.00173)	(1404	MQ 2	10MY1967	0.02541)	(					

Achnanthes lanceolata var. *robusta* Hust.

Achnanthes lanceolata var. *robusta* Hustedt, Arch. Hydrobiol., Suppl. 15:202, pl. 13, figs. 47-49. 1938.

20 ACLANCVB TOT NO OF STATIONS 2

1550	MR 1	5OC1967	0.30975)	(1426	MS 2	29MY1967	0.03150)	(					

Achnanthes lanceolatoides Sov.

Achnanthes lanceolatoides Sovereign, Trans. American Micr. Soc., 77(2): 115, pl. 2, figs. 18, 19. 1958.

26 ACLANTCO TOT NO OF STATIONS 1

(1567	GS15	5OC1967	0.00159)	(									

Achnanthes laterostrata Hust.

Achnanthes laterostrata Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)3:392, fig. 840. 1933.

28 ACLATERO TOT NO OF STATIONS 1

(1574	GS22	6OC1967	0.00575)	(									

Achnanthes lauenburgiana Hust.

Achnanthes lauenburgiana Hustedt, Abh. Naturw. Ver. Bremen, 33(3):451, figs. 1-6. 1944.

29 ACLAUENB TOT NO OF STATIONS 9

(1268	E 2	15AU1964	0.00274)	(13C5	F 2	11CC1964	0.00173)	(1383	GS 7	10MY1967	0.00267)		
(1572	GS20	6OC1967	0.00090)	(1574	GS22	6OC1967	0.00288)	(1544	MU 1	2OC1967	0.00238)		
1548	LU 1	2OC1967	0.00500)	(1527	TP 1	2OSE1967	0.00629)	(1530	FR 1	24SE1967	0.01000)		

Achnanthes lemmermanni Hust.

Achnanthes lemmermanni Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)3:390, fig. 837. 1933.

30 ACLEMPER TOT NO OF STATIONS 2

(1426	PS 2	25PY1967	0.07349)	(1350	BH 2	19AP1967	0.00220)	(			

31 ACLEPPEC TOT NO OF STATIONS 1

(1547	PS 1	20C1967	0.CC798)	(							

Achnanthes linearis (Wm. Smith) Grun.

Achnanthidium lineare Wm. Smith, Ann. Mag. Nat. Hist., Ser. 2, 15:8, pl. 1, fig. 9. 1855.
Achnanthes linearis (Wm. Smith) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):23. 1880.

32 ACLINEAR TOT NO OF STATIONS 55

146909	CH	PR1941	0.00455)	146906	CH	MY1947	0.00199)	146919	CH	5JN1947	C.C2428)
146907	CH	JL1947	0.00045)	146922	CH	21AU1947	0.00194)	146743	EV	20JN1937	0.0C428)
146770	EV	9JL1937	0.0C596)	146764	EV	17JL1937	0.02417)	146757	EV	25JL1937	C.C1444)
146747	EV	1AU1937	0.0C248)	146763	EV	23AU1937	0.14205)	146765	EV	30AU1937	C.0C558)
146752	EV	15SE1937	0.26121)	146767	EV	27OC1937	C.01934)	146768	EV	16MR1938	C.10290)
146762	EV	18MR1938	C.C8822)	146751	EV	30MR1938	0.02233)	(1243	E 6	13JN1964	C.0C624)
(1258	F 1	6JL1964	0.00236)	(1260	F 3	6JL1964	C.00191)	(1285	F 1	15SE1964	C.01912)
(1304	F 1	11OC1964	0.0C494)	(1343	A 6	19AP1967	C.00C69)	(1512	E 5	15E1967	C.0C393)
(1536	E 2	24SE1967	0.CC273)	(1352	GS16	12MY1967	0.00308)	(1554	GS 1	30C1967	C.CC336)
(1555	GS 2	3CC1967	0.00353)	(1558	GS 5	4OC1967	0.00396)	(1561	GS 9	4OC1967	C.C0587)
(1565	GS13	5OC1967	C.01014)	(1569	GS17	5OC1967	0.00169)	(1570	GS18	5OC1967	0.C3967)
(1571	GS19	6OC1967	C.0C059)	(1573	GS21	6OC1967	0.00112)	(1574	GS22	6OC1967	C.CC288)
(1575	GS23	6DC1967	0.C0125)	(1544	MU 1	2OC1967	0.00236)	(1546	LU 1	2OC1967	C.01000)
(1521	SH 1	18SE1967	0.00577)	(1523	AA 1	19SE1967	C.C0923)	(1527	TR 1	2OSE1967	C.C3774)
(1528	SB 1	2GSE1967	0.01444)	(1529	KN 1	2OSE1967	C.02398)	(1548	CA 1	3OC1967	C.C1272)
(1551	ES 1	5OC1967	0.04793)	(1552	SH 1	4OC1967	C.01981)	(1550	PR 1	5OC1967	C.49560)
(1553	SG 1	6CC1967	0.0C734)	(1426	MS 2	29PY1967	0.01050)	(1350	BH 2	19AP1967	C.17621)
(1352	KW 2	21AP1967	0.CC855)	(1404	MC 2	10MY1967	C.03811)	(1405	ES 2	12MY1967	C.0C645)
(1349	CI 2	15AP1967	0.0C359)	(							

Achnanthes linearis fo. *curta* H. L. Smith

Achnanthes linearis fo. *curta* H. L. Smith *in*: Boyer, Diat. Philadelphia, p. 59, figs. 16-17. 1916.

33 ACLINEFC TOT NO OF STATIONS 3

146915	CH	5JN1947	0.0C302)	146758	EV	5JN1937	0.01426)	(1305	F 2	11OC1964	C.00518)

Achnanthes marginulata Grun.

Achnanthes marginulata Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):21. 1880.

34 ACMARGIN TOT NO OF STATIONS 2

(1565	GS13	5OC1967	0.01014)	(1553	SG 1	6OC1967	0.01469)	(			

Achnanthes microcephala (Kütz.) Grun.

Achnanthidium microcephalum Kützing, Bacill., p. 75, pl. 3, figs. 13, 19. 1844.
Achnanthes microcephala (Kütz.) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):22. 1880.

35 ACMICROC TOT NO OF STATIONS 2

(1244	F 1	11JN1964	0.0C658)	(14C3	CA 2	10MY1967	C.34000)	(			

50 ACSPECOL TOT NO OF STATIONS 7

(1258	F 1	6JL1964	0.C33C4)	(1260	F 3	6JL1964	0.00387)	(1270	F 1	10AU1964	0.03012)
(1304	F 1	11OC1964	0.00494)	(1305	F 2	11OC1964	C.00173)	(1306	F 3	11OC1964	C.00277)
(1381	GS 5	10MY1967	0.0C477)	(							

Achnanthes minutissima Kütz.

Achnanthes minutissima Kützing, Linnaea, 8:578, pl. 16, fig. 54. 1833.

38 ACMINUTI TOT NO OF STATIONS 59

146924	CH	10PY1946	0.00141	146523	CH	22ND1946	0.00219	146920	CH	20DE1946	0.00154
146909	CH	PR1947	0.00455	146516	CH	4MY1947	0.00034	146919	CH	5JN1947	1.47949
146913	CH	6AU1947	0.03128	146758	EV	5JN1937	0.14264	146770	EV	9JL1937	0.05946
146704	EV	17JL1937	0.82192	146757	EV	25JL1937	0.22146	146747	EV	1AU1937	0.02228
146763	EV	23AU1937	2.27273	146752	EV	15SE1937	0.26121	146760	EV	22SE1937	0.01477
146748	EV	13DC1937	0.04270	146767	EV	27CC1937	0.00774	146749	EV	12MR1938	0.02427
146768	EV	10MR1938	0.07350	146762	EV	18PR1938	0.17644	146756	EV	27AP1938	0.00188
146766	EV	14LE1938	0.03165	1244	F 1	11JN1964	0.00219	1256	E 2	14JL1964	0.00183
1258	F 1	6JL1964	0.00708	1262	B 3	17AU1964	0.00210	1322	E 6	7NC1964	0.00333
1323	F 1	6NC1964	0.00279	1341	A 3	15AP1967	0.00108	1554	GS 1	3CC1967	0.00712
1555	GS 2	3CC1967	0.00352	1570	GS10	5DC1967	0.01983	1576	GS22	4DC1967	0.00575
1579	GS28	6CC1967	0.00126	1546	LL 1	2CC1967	0.09503	1523	RA 1	15SE1967	0.00923
1525	PM 1	2CSE1967	0.01392	1528	MC 1	20SE1967	0.00569	1527	TR 1	20SE1967	0.09031
1528	SB 1	2CSE1967	0.02888	1529	KN 1	20SE1967	0.57561	1530	FR 1	24SE1967	0.20002
1545	WL 1	2CC1967	0.05406	1549	MC 1	4DC1967	0.12334	1551	ES 1	5DC1967	0.01598
1552	SM 1	6CC1967	0.00660	1550	MR 1	5DC1967	1.09032	1553	SG 1	6CC1967	0.02203
1426	PS 2	25MY1967	0.05249	1427	LL 2	29MY1967	0.01211	1350	PM 2	19AP1967	0.11674
1352	KN 2	21AP1967	0.01718	1354	GM 2	25AP1967	0.00345	14C3	CA 2	10PY1967	0.05154
1404	MC 2	10PY1967	0.02541	14C5	ES 2	12MY1967	0.00645	14C7	SP 2	14MY1967	0.00597
14C6	CA 2	13MY1967	0.00270	1423	WA 2	25MY1967	0.00428				

Achnanthes minutissima var. *cryptocephala* Grun.

Achnanthes minutissima var. *cryptocephala* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 27, figs. 41-44. 1880.

37 ACMINCRC TOT NO OF STATIONS 13

146758	EV	5JN1937	0.00357	146757	EV	25JL1937	0.00983	146763	EV	23AU1937	0.03029
1260	F 3	6JL1964	0.00191	1562	E 3	11CC1967	0.01017	1387	GS11	12MY1967	0.00396
1389	GS13	12MY1967	0.00258	1394	GS10	13MY1967	0.00172	1568	GS16	5DC1967	0.00144
1549	MC 1	4CC1967	0.02741	1551	ES 1	5CC1967	0.01598	1403	CA 2	10MY1967	0.06539
1404	MC 2	10PY1967	0.03611								

Achnanthes nollii Bock

Achnanthes nollii Bock, Nachr. Naturw. Mus. Aschaffenburg, 38:54, pl. 2, figs. 1-2; pl. 5, figs. 7-9. 1953.

38 ACNOLLII TOT NO OF STATIONS 4

1549	MC 1	4CC1967	0.01370	1403	CA 2	10MY1967	0.03923	1404	MC 2	10MY1967	0.01270
1405	ES 2	12MY1967	0.00645								

47 ACSPECCI TOT NO OF STATIONS 3

1258	F 1	6JL1964	0.00238	1289	F 1	15SE1964	0.10483	1287	F 3	15SE1964	0.00900

Achnanthes oestrupi (A. Cl) Hust.

Achnanthes lanceolata var. *östrupi* A. Cleve-Euler, Acta Forest. Fennica, 22:53, pl. 1, fig. 1. 1922.
Achnanthes östrupi (A. Cl.) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 207, fig. 301. 1930.

35 ACCESTRU TOT NO OF STATIONS 4

1388	GS12	12MY1967	0.01207	1389	GS12	12MY1967	0.00258	1558	GS 5	4DC1967	0.00396
1404	MC 2	10PY1967	0.02541								

Achnanthes peragalli Brun

Achnanthes peragalli Brun *in*: Héribaud, Diat. Auvergne, p. 50, pl. 1, fig. 4. 1893.

4C ACPERAGA TOT NO OF STATIONS 2

1550	MR 1	5DC1967	0.02478	1404	MC 2	10PY1967	0.01270

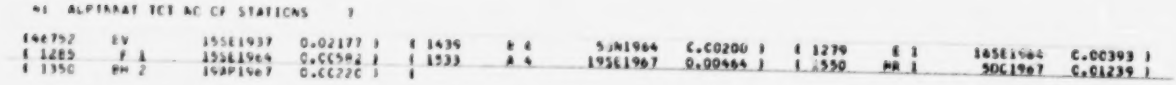
Achnanthes peragalli var. *fossilis* Temp. and Perag.

Achnanthes peragalli var. *fossilis* Tempere and Peragallo, Diat. Monde Entier, 2nd. ed., p. 113. 1909.

Coll: 982.

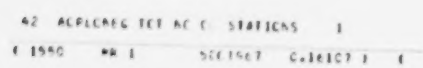
Achnanthes pinnata Hust.

Achnanthes pinnata Hustedt *in*: Hedin, Southern Tibet, vol. 6, pt. 3, p. 123, pl. 9, figs. 15-18. 1922.



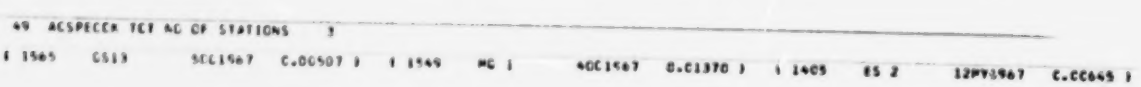
Achnanthes ploenensis Hust.

Achnanthes ploenensis Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 199, fig. 280. 1930.



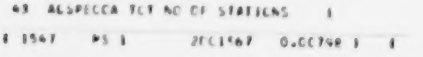
Achnanthes sublaevis Hust.

Achnanthes sublaevis Hustedt, Bot. Archiv. 38:180, figs. 15-16. 1937.

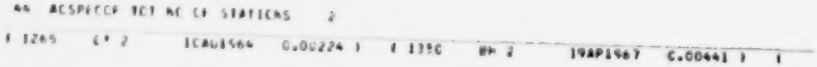


Species *incertae sedis*

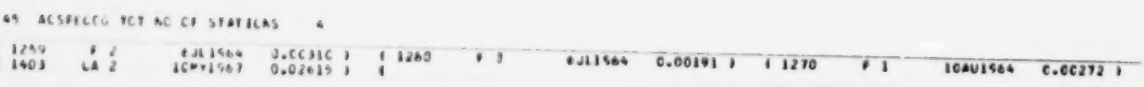
Achnanthes sp. #1.



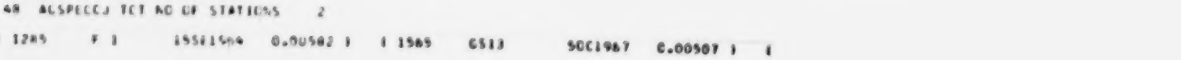
Achnanthes sp. #6.



Achnanthes sp. #7.



Achnanthes sp. #10.



Achnanthes sp. #13.

51 ACSPECCM TOT NO OF STATIONS 2

146915	CH	20FE1946	0.00585	146914	CH	19AP1946	0.00107	

Achnanthes sp. #14.

52 ACSPECON TOT NO OF STATIONS 1

1380	GS 4	9MY1967	0.00168	

Achnanthes sp. #15.

53 ACSPECCC TOT NO OF STATIONS 2

1394	GS19	13MY1967	0.00172	1397	GS21	13MY1967	0.00065	

Achnanthes sp. #16.

54 ACSPECCP TOT NO OF STATIONS 2

1571	GS19	6DC1967	0.00117	1550	MR 1	5DC1967	0.08673	

Achnanthes sp. #17.

55 ACSPECCQ TOT NO OF STATIONS 1

1550	MR 1	5DC1967	0.16107	

Achnanthes sp. #18.

56 ACSPECCR TOT NO OF STATIONS 1

1350	MM 2	19AP1967	0.00220	

Genus *Amphipleura* Kützing.

Kützing, Bacill., p. 103. 1844.

Most freshwater species of the genus *Amphipleura* find their primary habitat in periphyton communities. The two members of the genus that occur in our collections usually grow enclosed in gelatinous tubes. In eutrophied portions of Lake Michigan sizable populations of *A. pellucida* are often taken in plankton collections and these cells seem to be entirely free-living.

Amphipleura artica Patr. and Freese

Amphipleura artica Patrick and Freese, Proc. Acad. Nat. Sci. Philadelphia, 112:170, pl. 1, fig. 14. 1960.

57 APARTICA TOT NO OF STATIONS 5

146921	CH	23ND1945	0.00065	146915	CH	20FE1946	0	38	146923	CH	22NC1946	0.00437
146915	CH	5JN1947	0.00910	146768	EV	16MR1938	0	240				

Amphipleura pellucida (Kütz.) Kütz.

Frustulia pellucida Kützing, Linnaea, 8:543, pl. 13, fig. 11. 1833.
Amphipleura pellucida (Kütz.) Kützing, Bacill., p. 103, pl. 3, fig. 52. 1844.

160973	CH	1876	0.09447	146521	CH	23NO1945	C.00388	146908	CH	DE1945	C.01007		
146915	CH	20FE1946	0.01707	146914	CH	19AP1946	0.00107	146923	CH	22NO1946	0.01530		
146920	CH	20DE1946	0.00031	146912	CH	AP1947	C.01150	146919	CH	5JN1947	C.00910		
146922	CH	21AU1947	0.00048	146704	EV	17JL1937	0.01612	146747	EV	1AU1937	C.00495		
146752	EV	15SE1937	0.02177	146762	EV	18PR1938	0.02206	146766	EV	14DE1938	C.03169		
1223	B 3	18MY1964	0.01250	1224	B 4	18MY1964	0.01372	1225	C 4	15MY1964	C.01568		
1226	C 7	16MY1964	0.00381	1227	C* 2	13MY1964	0.00548	1228	D 2	14MY1964	C.00973		
1229	D 5	14MY1964	0.13322	1230	E 2	16MY1964	0.02371	1231	E 3	16MY1964	C.03180		
1232	E 5	16MY1964	0.03131	1233	B 3	5JA2964	0.02143	1234	B 3	18JN1964	C.02812		
1235	C 7	16JN1964	0.00867	1439	F 6	5JN1964	0.01399	1236	C* 1	8JN1964	C.02625		
1237	C* 2	8JN1964	0.05672	1238	D 3	11JN1964	0.01200	1239	C 4	11JN1964	C.01741		
1240	D 6	10JN1964	0.04295	1241	E 2	13JN1964	C.01183	1242	E 3	13JN1964	C.00450		
1243	E 6	13JN1964	0.03550	1244	F 1	11JN1964	0.02193	1245	F 2	11JN1964	C.04915		
1246	F 3	11JN1964	0.12550	1247	F 3	14JL1964	C.00854	1440	B 6	11JL1964	C.00369		
1441	B 6	24JL1964	0.00441	1250	C 6	10JL1964	0.01644	1251	C 7	16JL1964	C.00290		
1253	C* 2	16JL1964	C.01558	1254	C 2	15JL1964	0.01724	1255	D 5	15JL1964	C.02850		
1256	E 2	14JL1964	0.02585	1257	E 3	14JL1964	0.01436	1258	F 1	6JL1964	C.03540		
1259	F 2	6JL1964	0.09916	1260	F 2	6JL1964	0.07449	1264	C* 1	10AL1964	C.00193		
1266	D 3	18AU1964	0.01754	1267	D 6	18AU1964	0.00216	1268	E 2	15AU1964	C.02462		
1269	E 3	15AU1964	0.00822	1271	C 7	22SE1964	C.00653	1272	C* 1	10SE1964	C.00410		
1274	D 1	17SE1964	0.01408	1275	D 2	17SE1964	0.00645	1276	D 3	18SE1964	C.01118		
1277	D 4	18SE1964	0.00620	1278	D 4	18SE1964	C.00384	1279	E 1	16SE1964	C.01571		
1280	E 2	16SE1964	0.00681	1283	E 5	16SE1964	C.01839	1284	E 6	17SE1964	0.04766		
1285	F 1	15SE1964	0.04659	1286	F 2	15SE1964	0.01095	1287	F 3	15SE1964	C.02502		
1445	B 6	14OC1964	0.02283	1289	C 7	14OC1964	C.00879	1290	C* 1	16CC1964	C.00379		
1293	D 2	15OC1964	0.00472	1294	D 3	15OC1964	0.01978	1295	D 4	15CC1964	C.00595		
1296	D 5	14CC1964	0.00393	1297	D 6	14CC1964	0.00952	1298	E 1	12OC1964	C.00536		
1299	E 2	12CC1964	0.00314	1301	E 4	13OC1964	C.02208	1302	E 5	13OC1964	C.10932		
1303	E 6	13CC1964	0.02799	1304	F 1	11CC1964	0.00980	1305	F 2	11OC1964	C.00345		
1306	F 3	11CC1964	0.01663	1307	B 6	NO1964	C.01082	1308	C 7	6NO1964	C.01825		
1316	D 6	5NO1964	0.00378	1317	E 1	6NO1964	C.00191	1318	E 2	7NO1964	C.00190		
1319	E 3	7NO1964	0.01309	1320	E 4	7NO1964	0.00207	1321	E 5	7NO1964	C.00319		
1322	E 6	7NO1964	0.02999	1323	F 1	6NO1964	C.00418	1324	F 2	6NO1964	C.00466		
1325	F 3	6NO1964	0.00252	1336	C 3	27JA1967	0.00578	1337	C 3	2MR1967	0.01911		
1338	C 3	28MR1967	0.01851	1339	C 5	28MR1967	C.02494	1340	C 7	28MR1967	C.00509		
1341	A 3	19AP1967	0.01193	1342	A 4	19AP1967	0.02346	1343	A 6	19AP1967	C.00139		
1344	C 3	25AP1967	0.00381	1345	C 5	25AP1967	C.07017	1346	C 7	21AP1967	C.00534		
1347	E 2	23AP1967	0.01301	1348	E 5	23AP1967	0.02056	1368	A 3	4MY1967	C.00943		
1369	A 4	4MY1967	0.00373	1370	A 6	3MY1967	0.01611	1372	C 5	5MY1967	C.01773		
1374	E 2	7MY1967	0.00598	1375	E 3	7MY1967	0.00962	1376	E 5	6MY1967	C.01124		
1410	A 6	24MY1967	0.00584	1411	C 3	31MY1967	0.00821	1412	C 5	31MY1967	C.04209		
1414	E 2	28MY1967	0.01312	1415	E 3	28MY1967	C.00225	1416	E 5	28MY1967	C.00219		
1431	A 3	12JN1967	C.01030	1432	A 4	13JN1967	0.03576	1433	C 3	17JN1967	C.05167		
1434	C 5	17JN1967	C.05084	1435	C 7	13JN1967	C.00947	1436	E 2	15JN1967	C.00362		
1437	E 3	15JN1967	0.00269	1438	E 5	14JN1967	0.01452	1448	A 3	11JL1967	C.01712		
1447	A 4	11JL1967	0.03275	1448	A 6	10JL1967	0.00354	1449	C 3	10JL1967	C.01911		
1450	C 5	16JL1967	0.19424	1452	E 2	14JL1967	0.01277	1453	E 3	15JL1967	C.01517		
1509	C 5	25E1967	C.00505	1511	E 2	15E1967	C.01228	1512	E 3	15E1967	0.00785		
1513	E 5	31AU1967	0.00507	1536	E 2	24SE1967	0.00818	1542	E 3	11OC1967	C.00509		
1378	GS 2	9MY1967	0.00421	1379	GS 3	5MY1967	C.00928	1380	GS 4	9MY1967	C.00336		
1381	GS 5	10MY1967	0.00477	1383	GS 7	10MY1967	C.00267	1384	GS 8	10MY1967	C.00370		
1385	GS 9	10MY1967	C.01177	1386	GS10	12MY1967	C.00862	1387	GS11	12MY1967	C.05149		
1388	GS12	12MY1967	0.00603	1389	GS13	12MY1967	0.01547	1390	GS14	12MY1967	C.00587		
1391	GS15	12MY1967	0.02394	1392	GS16	12MY1967	0.00616	1393	GS17	13MY1967	C.01918		
1394	GS18	13MY1967	0.18578	1395	GS19	13MY1967	C.04932	1396	GS20	13MY1967	C.00148		
1397	GS21	13MY1967	0.00458	1398	GS22	14MY1967	0.03947	1554	GS 1	3OC1967	C.02846		
1555	GS 2	3OC1967	C.01059	1557	GS 4	3CC1967	C.00374	1559	GS 7	4OC1967	C.00350		
1562	GS10	5OC1967	0.01234	1563	GS11	5OC1967	C.09821	1566	GS14	5OC1967	C.00103		
1567	GS15	5OC1967	0.00635	1568	GS16	5OC1967	0.11255	1569	GS17	5OC1967	C.34784		
1570	GS18	5OC1967	0.30742	1571	GS19	6OC1967	C.09074	1572	GS20	6OC1967	C.02794		
1573	GS21	6OC1967	0.17359	1574	GS22	6CC1967	C.00863	1575	GS28	6OC1967	C.38125		
1521	SM 1	18SE1967	0.00577	1523	MA 1	15SE1967	0.00923	1526	PC 1	2CSE1967	C.17C7		
1551	ES 1	5CC1967	0.15177	1552	SM 1	6DC1967	0.02641	1550	PR 1	5OC1967	C.42369		
1553	SG 1	6UC1967	0.11751	1426	PS 2	29MY1967	0.02100	1351	PI 2	21AP1967	C.CC310		
1427	LU 2	29MY1967	0.08475	1417	HD 2	22MY1967	0.00374	1425	MA 2	25MY1967	C.CC884		
1401	MU 2	8MY1967	0.00588	1402	TR 2	6MY1967	C.01083	1352	PN 2	21AP1967	C.01718		
1353	PR 2	23AP1967	0.02110	1354	GH 2	25AP1967	0.00173	1429	NL 2	29MY1967	C.01062		
1403	CA 2	10MY1967	0.02615	1405	ES 2	12MY1967	0.05805	1407	SM 2	14MY1967	C.04777		
1349	CI 2	19AP1967	0.00359	1419	BL 2	23MY1967	C.05492	1422	CA 2	23MY1967	C.00511		
1423	MA 2	25MY1967	C.CC856	1424	MA 2	25MY1967	0.02665						

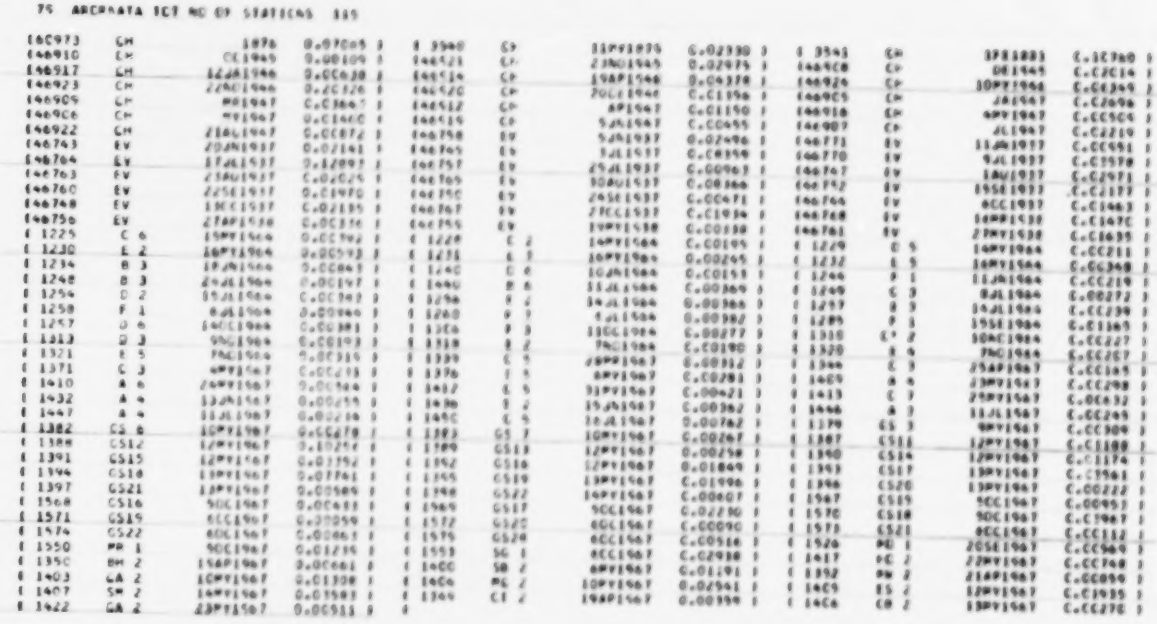
Genus *Amphiprora* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:10. 1841.

The single species of the genus *Amphiprora* that occurs in our collections finds it primary habitat in the epipelic community. It is, however, a successful facultative planktont and a few specimens can be found in many plankton collections from the Great Lakes. Because of its striking morphology it is easily identified and is more widely reported than many more abundant euplanktonic species.

Amphiprora ornata Bailey

Amphiprora ornata Bailey, Smithson. Cont. Knowl., 2:38, pl. 2, figs. 15, 23. 1851.



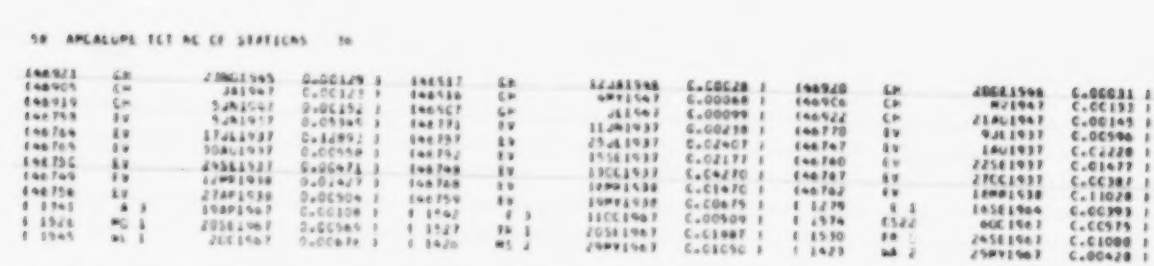
Genus *Amphora* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:205. 1841.

Most members of the genus *Amphora* find their primary habitat in periphyton communities where they grow attached to filamentous algae or to aquatic vascular plants. Some species grow attached to the larger forms of euplanktonic algae and are occasionally found in abundance in plankton collections. Although attached growth is usual in the genus it is not obligate and many, particularly the larger, species are found in abundance in epipelic communities. A number of unusual and apparently undescribed forms occur in our collections. This highly diverse flora appears to have its closest counterpart in the Siberian flora, particularly that associated with ancient Lake Baikal. It is suspected that this apparent disjunct distribution is more the result of lack of sufficient collection stations from large boreal lakes than from a truly disjunct distribution.

Amphora calumetica (Thomas) Per.

Amphiprora calumetica Thomas, Notarisia, 2:328. 1887.
Amphora calumetica (Thomas) Peragallo, Cat. Gen. Diat. 1897. (fide Mills, 1933; original reference not available).



Amphora crucifera A. Cleve

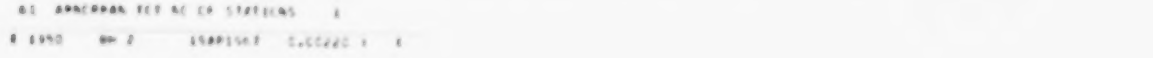
Amphora crucifera A. Cleve, Acta Forest. Fennica, 22:53. 1922.

Amphora montana Krasske

Amphora montana Krasske, Hedwigia, 72(3):119, pl. 2, fig. 27. 1932.

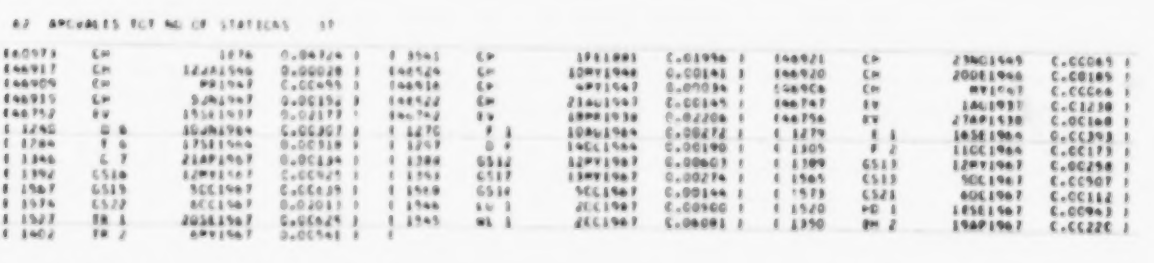
Amphora normani Rabh.

Amphora normani Rabenhorst, Fl. Europaea Alg., p. 88. 1864.



Amphora ovalis (Kütz.) Kütz.

Frustulia ovalis Kützing, Linnaea, 8:539, pl. 13, fig. 5. 1833.
Amphora ovalis (Kütz.) Kutzing, Bacill., p. 107, pl. 5, figs. 35, 39. 1844.



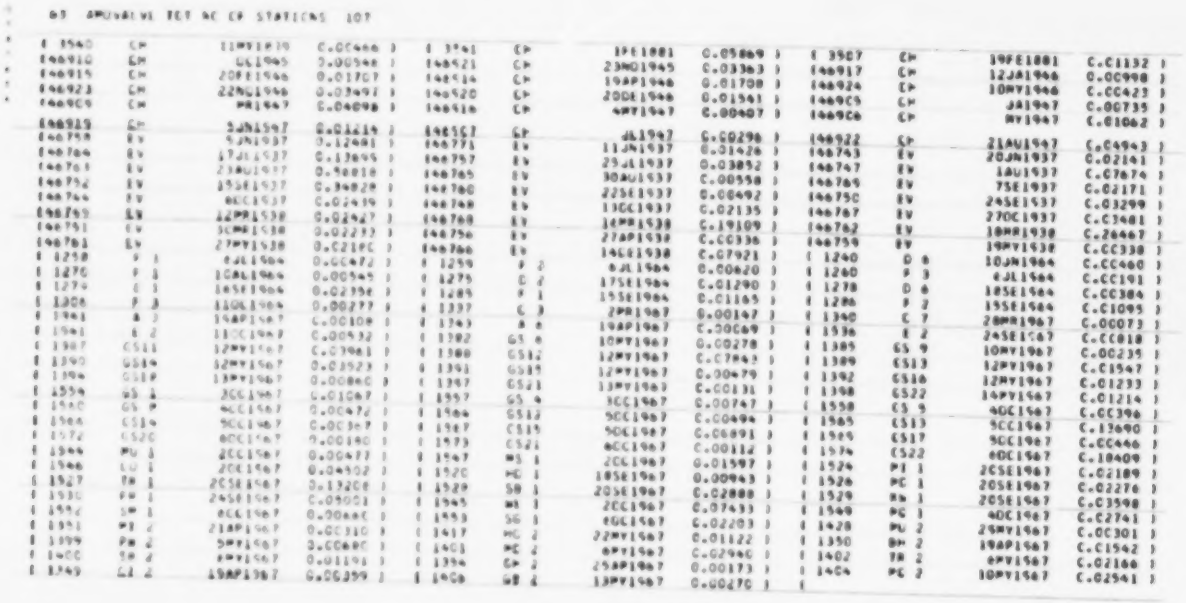
Amphora ovalis var. *gracilis* (Ehr.) V. H.

Amphora gracilis Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:410, pl. 3 (I), fig. 43. 1843.
Amphora ovalis var. *gracilis* (Ehr.) Van Heurck, Syn. Diat. Belgique, p. 59. 1885.

Coll: 1193.

Amphora ovalis var. *libyca* (Ehr.) Cleve

Amphora libyca Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:205. 1841.
Amphora ovalis var. *libyca* (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ser. 2, 27(3):104. 1895.



Amphora ovalis var. *pediculus* (Kütz.) V. H.

Cymbella ? pediculus Kützing, Bacill., p. 80, pl. 5, fig. 8; pl. 6, fig. 7. 1844.
Amphora ovalis var. *pediculus* (Kütz.) Van Heurck, Syn. Diat. Belgique, p. 59. 1885.

64 APOVALVP TCT AC CF STATICNS 139

(46973	CH		1876	0.18895)	(1541	CP		1FE1881	0.01956)	(46910	CH		0C1945	C.0C328)	
(46921	CH		23NO1945	C.00129)	(46517	CH		12JA1946	0.00083)	(46915	CH		20FE1946	C.02276)	
(46914	CH		19AP1946	0.00107)	(46524	CH		10MY1946	0.00282)	(46923	CH		22NO1946	C.01093)	
(46905	CH		JA1947	0.0C490)	(46509	CH		PR1947	0.00077)	(46916	CH		4MY1947	0.00068)	
(46906	CH		MY1947	0.00332)	(46515	CH		5JN1937	0.00759)	(46907	CH		JL1947	C.00049)	
(46922	CH		21AU1947	C.0C194)	(46758	EV		5JN1937	C.06062)	(46770	EV		9JL1937	C.0C596)	
(46764	EV		17JL1937	0.14504)	(46757	EV		25JL1937	C.C3370)	(46747	EV		1AU1937	C.03713)	
(46763	EV		23AU1937	0.54789)	(46765	EV		7SE1937	0.02171)	(46752	EV		15SE1937	C.34828)	
(46760	EV		22SE1537	0.00492)	(46750	EV		24SE1537	C.02357)	(46744	EV		6CC1937	C.0C975)	
(46748	EV		13CC1937	C.44833)	(46767	EV		27CC1937	0.01547)	(46749	EV		12MR1938	C.04855)	
(46768	EV		16MR1538	0.23519)	(46762	EV		18PR1938	C.39700)	(46751	EV		30MR1938	C.02233)	
(46759	EV		19MY1938	0.0C675)	(1241	E 2		13JN1964	0.00148)	(1243	E 6		13JN1964	C.00418)	
(1244	F 1		11JN1964	0.CC325)	(1245	F 2		11JN1964	C.00346)	(1258	F 1		6JL1964	C.C1416)	
(1260	F 3		4JL1964	0.0C101)	(1265	C 2		10AU1964	C.00224)	(1268	E 2		15AU1964	C.C2188)	
(1270	F 1		10AU1964	0.01634)	(1272	C 1		10SE1964	C.00410)	(1274	D 1		17SE1964	C.CC938)	
(1275	D 2		17SE1964	0.00645)	(1279	E 1		16SE1964	0.02749)	(1282	E 4		16SE1964	C.C1108)	
(1284	E 6		17SE1964	0.00635)	(1285	F 1		15SE1964	0.32031)	(1297	D 6		14OC1964	C.CC190)	
(1300	E 3		13CC1964	0.00358)	(1303	E 6		13CC1964	C.00560)	(1304	F 1		11OC1964	C.03457)	
(1305	F 2		11CC1964	C.03105)	(1306	F 3		11OC1964	0.01109)	(1317	E 1		6NO1964	C.0C191)	
(1323	F 1		6NO1964	0.00139)	(1346	C 3		21AP1967	C.00134)	(1450	C 5		16JL1967	C.0C190)	
(1452	E 2		14JL1967	C.00426)	(1511	E 2		1SE1967	0.00307)	(1512	E 3		1SE1967	C.CC393)	
(1537	E 3		24SE1967	0.00431)	(1538	E 5		23SE1967	C.02762)	(1541	E 2		11OC1967	C.00532)	
(1542	E 3		11OC1967	C.00509)	(1543	E 5		10CC1967	0.00718)	(1380	GS 4		9MY1967	C.0C168)	
(1383	GS 7		10MY1967	C.00267)	(1384	GS 8		10MY1967	C.00185)	(1386	GS10		12MY1967	C.CC575)	
(1388	GS12		12MY1967	0.04827)	(1389	GS13		12MY1967	C.01289)	(1390	GS14		12MY1967	C.01174)	
(1392	GS16		12MY1967	C.0C616)	(1393	GS17		13MY1967	0.00548)	(1394	GS18		13MY1967	C.CC516)	
(1395	GS19		13MY1967	0.0C235)	(1396	GS20		13PY1967	0.00592)	(1397	GS21		13MY1967	C.CC196)	
(1398	GS22		14MY1967	0.02429)	(1554	GS 1		3CC1967	0.00712)	(1555	GS 2		3DC1967	C.01412)	
(1556	GS 3		3CC1967	C.01C43)	(1557	GS 4		3CC1967	C.00747)	(1558	GS 5		4CC1967	C.C1586)	
(1559	CS 7		4DC1967	0.0035C)	(1560	GS 8		4CC1967	0.00945)	(1562	GS10		5DC1967	C.0C247)	
(1565	GS13		5DC1967	5.32405)	(1566	GS14		5CC1967	C.00367)	(1567	GS15		5CC1967	C.1C161)	
(1568	GS16		5DC1967	0.00144)	(1571	GS19		6DC1967	0.00293)	(1572	GS20		6DC1967	C.01262)	
(1573	GS21		6DC1967	0.01904)	(1574	CS22		6DC1967	C.07307)	(1575	GS28		6DC1967	C.0C774)	
(1544	MU 1		2DC1967	0.03336)	(1547	MS 1		2DC1967	0.03194)	(1546	LU 1		2DC1967	C.5C518)	
(1520	PO 1		18SE1967	0.01414)	(1521	SM 1		18SE1967	0.03462)	(1522	BM 1		18SE1967	C.C0365)	
(1523	PA 1		19SE1967	0.01845)	(1526	MO 1		20SE1967	0.32429)	(1527	TR 1		20SE1967	1.00629)	
(1528	SB 1		26SE1967	0.07219)	(1529	KN 1		20SE1967	1.00731)	(1530	FR 1		24SE1967	C.21002)	
(1545	ML 1		2CC1967	1.83796)	(1548	CA 1		3CC1967	C.01272)	(1549	PQ 1		4DC1967	C.06852)	
(1551	ES 1		5CC1967	0.03195)	(1552	SP 1		6DC1967	0.05282)	(1550	PR 1		5CC1967	1.48241)	
(1553	SG 1		6CC1967	0.10282)	(1428	ML 2		29MY1967	0.00301)	(1426	PS 2		29MY1967	C.88189)	
(1351	MI 2		21AP1967	C.0C621)	(1427	LL 2		29MY1967	C.01211)	(1417	PO 2		22MY1967	C.C1869)	
(1350	BM 2		19AP1967	C.38766)	(1399	PM 2		5MY1967	C.00680)	(1401	PO 2		6MY1967	C.05292)	
(1402	TR 2		6MY1967	0.03249)	(1400	SB 2		6MY1967	C.00596)	(1352	KN 2		21AP1967	C.00859)	
(1353	FR 2		23AP1967	0.02110)	(1354	GM 2		25AP1967	C.01381)	(1429	ML 2		29MY1967	C.C1062)	
(1403	CA 2		16MY1967	0.02615)	(1404	MC 2		10MY1967	0.26677)	(1405	ES 2		12MY1967	C.0C645)	
(1407	SM 2		14MY1967	0.22691)	(1349	CI 2		19AP1967	0.01437)	(1422	CA 2		23MY1967	C.CC511)	
(1423	MA 2		25MY1967	0.00428)	(										

Amphora rotunda Skv.

Amphora rotunda Skvortzow, Phillipine J. Sci., 62(3):342, pl. 12, fig. 18. 1937.

6F APROTUNG TCT AC CF STATICNS 1

(1520	PO 1	18SE1967	C.0C471)	(	

Amphora siberica Skv. and Meyer

Amphora siberica Skvortzow and Meyer, Proc. Sungaree River Biol. Sta., 1(5):36, pl. 3, fig. 168. 1928.

6E APSIBIRI TCT AC CF STATICNS 13

(46758	EV		5JN1937	0.01426)	(46743	EV		20JN1937	C.00856)	(46747	EV		1AU1937	C.0C495)	
(46752	EV		15SE1937	C.04354)	(46744	EV		6OC1937	0.C0488)	(46762	EV		18MR1938	C.02206)	
(1258	F 1		6JL1964	0.0C236)	(1546	LU 1		2OC1967	0.01501)	(1545	ML 1		2CC1967	0.C2703)	
(1427	LU 2		29MY1967	0.01211)	(1402	TR 2		6MY1967	0.01083)	(1400	SB 2		6MY1967	C.0C596)	
(1354	GM 2		25AP1967	C.0C173)	(										

Amphora veneta Kütz.

Amphora veneta Kützing, Bacill., p. 108, pl. 3, fig. 24. 1844.

67 APVENETA TCT AC CF STATICNS 4

(46916	CP		4MY1967	0.00136)	(1240	D 6		10JN1964	0.00153)	(1350	BM 2		19AP1967	C.0C441)	
(1406	GB 2		13MY1967	0.0C270)	(										

Species *incertae sedis*

Amphora "veneta var. angularis" (not published)

68 APVENEVA TOT NO OF STATIONS 6

(46770	EV	9JL1937	0.0C596)	(1254	C 2	15JL1964	0.00192)	(1268	E 2	15AU1964	0.00274)
(1557	GS 4	30C1967	0.00374)	(1565	GS13	5DC1967	0.00507)	(1574	GS22	6DC1967	C.00288)

Amphora sp. #1.

69 AMSPECDA TOT NO OF STATIONS 4

(1258	F 1	6JL1964	0.00236)	(1285	F 1	15SE1964	0.00582)	(1393	GS17	13MY1967	C.00274)
(1574	GS22	6DC1967	0.00288)	(							

Amphora sp. #3.

70 AMSPECDC TOT NO OF STATIONS 10

(1258	F 1	6JL1964	0.00236)	(1279	E 1	16SE1964	0.00393)	(1543	E 5	10CC1967	C.CC718)
(1393	GS17	13MY1967	0.00274)	(1554	GS 1	30C1967	0.00356)	(1565	GS13	5DC1967	C.C5578)
(1546	LU 1	2CC1967	0.00500)	(1526	MC 1	20SE1967	0.00569)	(1545	WL 1	2CC1967	C.07433)
(1550	MR 1	5CC1967	C.01239)	(							

Amphora sp. #4.

71 AMSPECDD TOT NO OF STATIONS 12

(46917	CH	12JA1946	0.00028)	(46514	CH	19AP1946	0.00107)	(46919	CH	5JA1947	C.CC152)
(46747	EV	1AU1937	0.0C248)	(46752	EV	15SE1937	0.02177)	(46748	EV	13DC1937	C.C4270)
(46767	EV	27DC1937	0.0C774)	(1285	F 1	15SE1964	C.C2330)	(1411	C 3	31MY1967	C.CC410)
(1388	GS12	12MY1967	0.00603)	(1566	GS14	5DC1967	0.00183)	(1573	GS21	6DC1967	C.CC112)

Amphora sp. #6.

72 AMSPECDF TOT NO OF STATIONS 8

(1346	C 7	21AP1967	0.0C134)	(1521	SH 1	18SE1967	C.00577)	(1527	TR 1	20SE1967	C.C4403)
(1545	WL 1	20C1967	0.08109)	(1417	MC 2	22MY1967	0.00374)	(1350	BH 2	19AP1967	C.0C220)
(1400	SB 2	6MY1967	0.C1787)	(1421	CH 2	23MY1967	0.01735)	(			

Amphora sp. #7.

73 AMSPECDG TOT NO OF STATIONS 1

(1285	F 1	15SE1964	0.C2330)	(

Amphora sp. #8.

74 AMSPECDH TOT NO OF STATIONS 3

(1389	GS13	12MY1967	0.00258)	(1565	GS13	5DC1967	C.00507)	(1350	BH 2	19AP1967	C.0C220)

Amphora sp. #9.

75 AMSPECCI TOT NO OF STATIONS 1

(1565	GS13	50C1967	C.CC507)	(							

Amphora sp. #10.

76 AMSPECCJ TOT NO OF STATIONS 2

(1574	GS22	60C1967	C.CC863)	(1404	PG 2	10MY1967	0.01270)	(			

Amphora sp. #11.

77 AMSPECCK TOT NO OF STATIONS 1

(1520	HO 1	18SE1967	0.00471)	(							

Genus *Anomoeoneis* Pfitz.
Pfitzer, Bot. Abh. Geb. Morph. Physiol., 1(2):77. 1871.

Members of the genus *Anomoeoneis* find their primary habitat in periphyton and epipelic communities. The few specimens that we have taken in plankton collections from Lake Michigan are most likely accidental occurences being derived from other habitats.

Anomoeoneis serians var. *brachysira* (Bréb. *ex* Kütz.) Hust.

Navicula aponina var. *brachysira* de Brébisson *ex* Kützing, Sp. Alg., p. 69. 1849.
Anomoeoneis serians var. *brachysira* (Bréb. *ex* Kütz.) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 264, fig. 427. 1930.

80 ANSERVBG TOT NO OF STATIONS 1

1285	F 1	15SE1964	0.00582)	(							

Anomoeoneis vitrea (Grun.) Ross

Gomphonema vitreum Grunow *in*: Schneider, Naturw. Beitr. Kenntn. Kaukasusländer, p. 110. 1878.
Anomoeoneis vitrea (Grun.) Ross *ex* Reimer *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:380, pl. 33, figs. 12-13. 1966.

81 ANVITREA TOT NO OF STATIONS 33

(46924	CH	10MY1946	0.00071)	(46505	CH	JA1947	0.00123)	(46916	CH	4MY1947	C.CC170)
(46919	CH	5JN1947	0.24582)	(46513	CH	6AU1947	0.03138)	(46922	CH	21AU1947	C.00048)
(46764	EV	17JL1937	0.03223)	(46757	EV	25JL1937	0.02889)	(46747	EV	1AU1937	C.CC495)
(46763	EV	23AU1537	0.06088)	(46752	EV	15SE1937	C.04354)	(46750	EV	24SE1937	C.CC471)
(46768	EV	16MR1538	0.01470)	(46762	EV	18MR1938	C.02206)	(46751	EV	30MR1538	C.01117)
(1245	F 2	11JN1964	0.00346)	(1258	F 1	6JL1964	0.00944)	(1260	F 3	6JL1964	C.CC191)
(1268	F 2	15AU1964	0.00274)	(1270	F 1	10AU1964	C.01906)	(1285	F 1	15SE1964	C.C5241)
(1452	F 2	14JL1967	0.CC426)	(1380	GS 4	9MY1967	0.00168)	(1394	GS18	13MY1967	C.CC172)
(1554	GS 1	30C1967	0.00356)	(1565	GS13	50C1967	C.00507)	(1546	LU 1	20C1967	C.CC500)
(1545	WL 1	2CC1967	C.00676)	(1549	MQ 1	40C1967	C.01370)	(1551	ES 1	5CC1967	C.CC799)
(1550	MR 1	50C1967	0.02478)	(1403	CA 2	10MY1967	C.06539)	(1404	PG 2	10MY1967	C.02541)

Species *incertae sedis*

Anomoeoneis vitrea var. 1.

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82  ANVITRVA TOT NC CF STATICNS    5

(46913    CH        6AU1947   0.01046 )  ( 1285    F 1      15SE1964   C.02912 )  ( 1575    GS28      6DC1967   C.0C129
( 1403    CA 2      1CMY1967   0.01308 )  ( 1404    MC 2     10MY1967   0.01270 )  (
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Genus *Asterionella* Hass.

Hassall, Micr. Exam. Water, p. 10, pl. 2(2), fig. 5. 1850.

Asterionella bleakeleyi Wm. Smith

Asterionella bleakeleyi Wm. Smith, Syn. British Diat., vol. 2, p. 82. 1856.

Cells asymmetric to the transverse axis, in life attached by the broader end to 4-16 other cells, forming a stellate colony. Valves of specimens from Lake Michigan 35-67μ long, 4-5μ broad at widest extremity. In this taxon the valves taper slightly from the much expanded, often asymmetric, "headpole" to the less expanded "footpole." The width of the midpoint of the valve is always greater than one-half the width of the widest extremity. The margins of the valve are usually slightly convex near middle and are suddenly and sharply constricted just before the capitate "footpole." Striae fine and inconspicuous, without visible substructure, 26-30 in 10μ. Axial area narrow, central area lacking.

This entity is common in some polluted harbors bordering Lake Michigan. We have not, as yet, found it in appreciable quantities in the plankton of the open lake. It is difficult to distinguish from *A. formosa* in the living condition, although its broader, blunter valves which are somewhat expanded in the middle allow it to be recognized if populations of the two entities are compared. Cleaned preparations are required for certain identification.

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86  ASBLEAKL TCT NC CF STATICNS    1

( 1522    BH 1      18SE1967  11.29629 )  (
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Asterionella formosa Hass.

Asterionella formosa Hassall, Micr. Exam. Water, p. 10, pl. 2(2), fig. 21. 1850.

Cells asymmetric to the transverse axis, in life attached by the broader end to 4-16 other cells, forming a stellate colony. Valves of specimens from Lake Michigan 42-120μ long, 4-5μ broad at the widest extremity. In this taxon the ends of the valve are suddenly and sharply expanded and the body of the valve is very narrow (1.5-2μ) with parallel sides in the large individuals and a slight taper towards the smaller end in smaller individuals. The width of the midpoint of the valve is always less then one-half that of the widest extremity. Striae fine and inconspicuous, without visible substructure, 24-28 in 10μ. The axial area is very narrow and filiform, central area entirely lacking. In specimens from Lake Michigan very small spines often occur on the margins of the valves.

This species is abundant in collections from all areas of Lake Michigan. Populations from the open are usually composed mostly of individuals with less robust structure and apparently lighter silicification than nearshore populations. Although it is tempting to separate these, our observations indicate that they represent a growth form and cannot be distinguished on the basis of morphology. In areas of the lake that have been eutrophied, both the relative abundance and the seasonal dominance of this species are increased.

84 ASFCRPCS TCT NC OF STATICNS 316

146973	CH	1876	1.86585	146510	CH	0C1945	2.87499	146921	CH	23NO1945	6.01116
146908	CH	0E1945	7.53272	146517	CH	12JA1946	4.63131	146915	CH	20FE1946	5.54828
146914	CH	15AP1946	2.44858	146524	CH	10MY1946	0.68782	146923	CH	22NO1946	3.33741
146920	CH	20DE1946	1.98263	146505	CH	JA1947	0.59811	146909	CH	MR1947	2.36783
146912	CH	AP1947	9.71599	146516	CH	4MY1947	26.39847	146906	CH	MY1947	18.72278
146919	CH	5JN1947	20.36691	146507	CH	JL1947	18.10959	146913	CH	6AU1947	C.42883
146922	CH	21AU1947	1.57505	146758	EV	5JN1937	6.78981	146771	EV	11JN1937	12.78113
146743	EV	20JN1937	21.10130	146745	EV	3JL1937	2.92581	146770	EV	9JL1937	1.83683
146764	EV	17JL1937	3.60995	146757	EV	25JL1937	1.34803	146747	EV	1AU1937	C.44043
146763	EV	23AU1937	1.78571	146765	EV	30AU1937	0.52426	146769	EV	7SE1937	C.28224
146752	EV	15SE1937	0.93600	146760	EV	22SE1937	1.10296	146750	EV	24SE1937	2.11151
146744	EV	6OC1937	1.50215	146748	EV	13OC1937	3.97096	146767	EV	27OC1937	11.04793
146745	EV	12MR1938	13.25403	146768	EV	16MR1938	11.11274	146762	EV	18MR1938	5.33745
146751	EV	30MR1938	7.81595	146772	EV	18AP1938	10.92974	146756	EV	27AP1938	22.00244
146759	EV	19MY1938	0.81702	146761	EV	27MY1938	2.74719	146766	EV	14DE1938	15.51837
1223	B 3	18MY1964	C.CC938	1224	E 4	18MY1964	0.04313	1225	C 6	15MY1964	C.75657
1226	C 7	16MY1964	0.53272	1227	C* 2	13MY1964	0.01645	1228	D 2	14MY1964	C.C6617
1229	D 5	14MY1964	0.54133	1230	E 2	16MY1964	0.05334	1231	E 3	16MY1964	C.31553
1232	E 5	18MY1964	0.14087	1233	B 3	5JN2964	0.11907	1234	B 3	18JN1964	C.14901
1235	C 7	16JN1964	0.19770	1439	B 6	5JN1964	2.23776	1236	C* 1	8JN1964	C.13678
1237	C* 2	8JN1964	0.24233	1238	D 3	11JN1964	0.11800	1239	D 4	11JN1964	0.01741
1240	D 6	10JN1964	C.53688	1241	E 2	13JN1964	0.56924	1242	E 3	13JN1964	C.C6894
1243	E 6	13JN1964	0.58465	1244	F 1	11JN1964	0.38376	1245	F 2	11JN1964	C.06224
1246	F 3	11JN1964	0.25100	1247	B 3	14JL1964	0.99885	1248	B 3	24JL1964	1.37936
1440	B 6	11JL1964	3.35335	1441	B 6	24JL1964	2.46701	1249	C 3	8JL1964	6.24221
1250	C 6	10JL1964	0.52210	1251	C 7	16JL1964	0.74164	1252	C* 1	16JL1964	C.9C934
1253	C* 2	16JL1964	0.53405	1254	D 2	15JL1964	1.27370	1255	D 5	15JL1964	3.55324
1256	E 2	14JL1964	0.83352	1257	E 3	14JL1964	C.72736	1258	F 1	6JL1964	4.79033
1259	F 2	6JL1964	4.12122	1260	F 3	6JL1964	4.94681	1261	B 3	2AU1964	2.C6060
1262	B 3	17AU1964	8.37883	1442	B 6	2AU1964	2.62709	1443	B 6	16AU1964	C.65109
1263	C 7	15AU1964	0.58045	1264	C* 1	10AU1964	1.89218	1265	C* 2	10AU1964	6.88530
1266	D 3	18AU1964	7.36835	1267	D 6	18AU1964	0.05274	1268	E 2	15AU1964	6.51056
1269	E 3	15AU1964	4.98821	127C	F 1	10AU1964	15.05786	1444	B 6	19SE1964	4.24384
1271	C 7	22SE1964	0.91402	1272	C* 1	10SE1964	9.76891	1273	C* 2	10SE1964	14.30184
1274	D 1	17SE1964	3.61282	1275	D 2	17SE1964	13.09593	1276	D 3	18SE1964	2.61511
1277	D 4	18SE1964	2.16879	1278	D 6	18SE1964	1.34517	1279	E 1	16SE1964	7.49623
1280	E 2	16SE1964	2.38274	1281	E 3	16SE1964	2.74693	1282	E 4	16SE1964	3.87812
1283	E 5	16SE1964	2.78901	1284	E 6	17SE1964	11.34306	1285	F 1	15SE1964	6.52262
1286	F 2	15SE1964	3.83100	1287	F 3	15SE1964	8.05645	1288	B 3	15OC1964	11.73320
1445	B 6	14OC1964	10.27397	1289	C 7	14OC1964	5.84847	1290	C* 1	16OC1964	11.53860
1291	C* 2	16OC1964	5.13673	1292	D 1	15OC1964	8.34824	1293	D 2	15OC1964	10.89520
1294	D 3	15OC1964	7.84521	1295	D 4	15OC1964	8.74C63	1296	D 5	14OC1964	9.78353
1297	D 6	14OC1964	5.55765	1298	E 1	12CC1964	13.57174	1299	E 2	12OC1964	9.C1665
1300	E 3	13OC1964	9.77269	1301	E 4	13CC1964	6.49121	1302	E 5	13OC1964	11.33695
1303	E 6	13OC1964	9.79514	1304	F 1	11OC1964	4.32184	1305	F 2	11OC1964	4.34738
1306	F 3	11OC1964	3.10438	13C7	B 6	NO1964	10.60759	1308	C 7	6NO1964	6.81286
1309	C* 1	10NO1964	17.44597	1310	C* 2	10NO1964	18.09523	1311	D 1	8NO1964	16.75478
1312	D 2	8NO1964	17.38319	1313	D 3	9NO1964	10.54054	1314	D 4	9NO1964	8.84219
1315	D 5	9NO1964	6.05095	1316	D 6	9NO1964	8.46177	1317	E 1	6NO1964	14.6C902
1318	E 2	7NO1964	12.25196	1319	E 3	7NO1964	13.74597	1320	E 4	7NO1964	16.5C464
1321	E 5	7NO1964	16.98270	1322	E 6	7NO1964	13.53018	1323	F 1	6NO1964	11.12195
1324	F 2	6NO1964	8.31528	1325	F 3	6NO1964	2.46858	1336	C 3	27JA1967	1.48268
1337	C 3	2MR1967	7.51040	1338	C 3	28MR1967	5.73862	1339	C 5	28MR1967	C.37102
1340	C 7	28MR1967	11.3C026	1341	A 3	19AP1967	1.74653	1342	A 4	19AP1967	2.27383
1343	A 6	19AP1967	2.67474	1344	C 3	25AP1967	2.20035	1345	C 5	25AP1967	2.18311
1346	C 7	21AP1967	2.33667	1347	E 2	23AP1967	2.39005	1348	E 5	23AP1967	1.43934
1368	A 3	4MY1967	0.04713	1369	A 4	4MY1967	C.02982	1370	A 6	3MY1967	C.16112
1371	C 3	4MY1967	0.00693	1372	C 5	5MY1967	C.00709	1373	C 7	5MY1967	C.01426
1374	E 2	7MY1967	1.25523	1375	E 3	7MY1967	0.03609	1376	E 5	6MY1967	C.12930
1408	A 3	23MY1967	0.37115	14C9	A 4	23MY1967	1.14563	1410	A 6	24MY1967	C.11840
1411	C 3	31MY1967	0.41850	1412	C 5	31MY1967	1.62051	1413	C 7	25MY1967	C.C4422
1414	E 2	28MY1967	0.76574	1415	E 3	28MY1967	0.31479	1416	E 5	28MY1967	C.38269
1431	A 3	12JN1967	1.98265	1432	A 4	13JN1967	C.98345	1433	C 3	17JN1967	4.52138
1434	C 5	17JN1967	0.57722	1435	C 7	13JN1967	0.19891	1436	E 2	15JN1967	C.43060
1437	E 3	15JN1967	0.62983	1438	E 5	14JN1967	0.40668	1446	A 3	11JL1967	0.84898
1447	A 4	11JL1967	18.33832	1448	A 6	10JL1967	0.59416	1449	C 3	16JL1967	5.61733
1450	C 5	16JL1967	8.39760	1451	C 7	16JL1967	5.37380	1452	E 2	14JL1967	12.51756
1453	E 3	15JL1967	4.77719	1454	E 5	15JL1967	21.00420	1504	A 3	28AU1967	1.72818
1505	A 4	28AU1967	24.88921	1506	A 6	29AU1967	5.49249	1508	C 3	2SE1967	15.58276
1509	C 5	2SE1967	19.43C66	1510	C 7	29AU1967	13.27853	1511	E 2	1SE1967	32.01645
1512	E 3	1SE1967	10.44448	1513	E 5	31AU1967	4.25661	1532	A 3	18SE1967	4.82901
1533	A 4	19SE1967	12.02302	1534	A 6	19SE1967	7.16657	1535	C 7	20SE1967	3.37979
1536	E 2	24SE1967	19.08708	1537	E 3	24SE1967	6.03813	1538	E 5	23SE1967	3.28675
1539	C 3	4CC1967	16.55429	1540	C 5	4CC1967	5.55914	1541	E 2	11OC1967	1C.43052
1542	E 3	11OC1967	13.17128	1543	E 5	10OC1967	7.03922	1377	GS 1	9MY1967	C.0C396
1378	GS 2	9MY1967	0.03364	1379	GS 3	9MY1967	0.01547	1380	GS 4	9MY1967	C.15806
1381	GS 5	10MY1967	0.19797	1382	GS 6	10MY1967	0.00278	1383	GS 7	10MY1967	C.C8287
1384	GS 8	10MY1967	0.02588	1385	GS 9	10MY1967	C.C4709	1386	GS10	12MY1967	C.16087
1387	GS11	12MY1967	C.11090	1390	GS14	12MY1967	0.01762	1391	GS15	12MY1967	C.C6225
1392	GS16	12MY1967	0.04315	1353	GS17	13MY1967	0.25751	1394	GS18	13MY1967	C.84288
1395	GS19	13MY1967	0.45212	1396	GS20	13MY1967	0.05771	1397	GS21	13MY1967	C.41567
1398	GS22	14MY1967	0.13662	1554	GS 1	30C1967	8.46794	1555	GS 2	3CC1967	8.15678
1556	GS 3	30C1967	7.66543	1557	GS 4	30C1967	6.53961	1558	GS 5	4OC1967	8.6C155
1559	GS 7	4OC1967	6.12016	1560	GS 8	4OC1967	6.28158	1561	GS 9	4CC1967	4.51957
1562	GS10	5CC1967	12.66670	1563	GS11	5CC1967	6.71094	1564	GS12	5OC1967	4.55424

(1565	GS13	5DC1967	10.64801)	(1566	GS14	5DC1967	3.21042)	(1567	GS15	5DC1967	1.22253)
(1568	GS16	5DC1967	15.55533)	(1569	GS17	5DC1967	3.53782)	(1570	GS18	5DC1967	3.81793)
(1571	GS19	6DC1967	2.41765)	(1572	GS2C	6DC1967	2.39743)	(1573	GS21	6DC1967	8.7C169)
(1574	GS22	6DC1967	10.47000)	(1575	GS28	6DC1967	3.97378)	(1544	PU 1	2DC1967	1.86813)
(1547	MS 1	2DC1967	1.07784)	(1524	MI 1	20SE1967	0.10946)	(1546	LU 1	20C1967	C.31511)
(1520	MC 1	18SE1967	0.43849)	(1521	SH 1	18SE1967	1.93861)	(1523	PA 1	19SE1967	5.31365)
(1525	PW 1	20SE1967	3.11934)	(1526	MC 1	20SE1967	4.64243)	(1527	TR 1	20SE1967	1.10692)
(1528	SB 1	20SE1967	4.85128)	(1529	KN 1	20SE1967	6.52356)	(1530	FR 1	24SE1967	3.20032)
(1531	CH 1	25SE1967	0.04536)	(1545	WL 1	20C1967	C.56761)	(1548	CA 1	3CC1967	1.28482)
(1549	MQ 1	4DC1967	14.25243)	(1551	ES 1	5DC1967	24.15527)	(1552	SM 1	6DC1967	32.32750)
(1550	MR 1	5DC1967	9.91203)	(1553	SG 1	6DC1967	35.37015)	(1428	PU 2	29MY1967	1.C6C59)
(1426	PS 2	29MY1967	4.19947)	(1351	MI 2	21AP1967	13.15749)	(1427	LU 2	29MY1967	C.69007)
(1417	PQ 2	22MY1967	2.39270)	(1418	SH 2	22MY1967	0.01555)	(1350	BM 2	19AP1967	C.59511)
(1425	AA 2	25MY1967	0.02652)	(1299	PW 2	5MY1967	1.41458)	(1401	MQ 2	6MY1967	C.45389)
(1402	TR 2	6MY1967	0.45484)	(1400	SB 2	6MY1967	2.09674)	(1352	KN 2	21AP1967	15.52998)
(1353	FR 2	23AP1967	2.36287)	(1354	GH 2	25AP1967	2.95504)	(1429	WL 2	25MY1967	1.69869)
(1403	CA 2	10MY1967	0.28769)	(14C4	MQ 2	10MY1967	0.19055)	(1405	ES 2	12MY1967	1.34159)
(1407	SM 2	14MY1967	2.77065)	(1349	CI 2	19AP1967	4.65551)	(14C6	GB 2	13MY1967	C.42132)
(1419	BU 2	23MY1967	0.40278)	(1420	IH 2	23MY1967	0.13595)	(1421	CH 2	23MY1967	C.10409)
(1422	CA 2	25MY1967	0.04087)	(1423	WA 2	25MY1967	C.14987)	(1424	PA 2	25MY1967	C.29310)
(1430	MC 2	12JN1967	0.04935)	(							

Asterionella gracillima (Hantz.) Heib.

Diatoma gracillimum Hantzsch *in*: Rabenhorst, Alg. Sachens resp. Mitteleuropas, No. 1104. 1861.
Asterionella gracillima (Hantz.) Heiberg, Consp. Crit. Diat. Danicarum, p. 68, pl. 6, fig. 19. 1863.

Cells nearly symmetric, in life attached at one end to form stellate colonies of 4-16 cells. Valves of specimens from Lake Michigan 35-60μ long, 3-4μ broad at the widest extremity. In this taxon the valves are sublinear with capitate ends of nearly equal size. Striae fine and inconspicuous, 24-28 in 10μ, without visible substructure. Axial area very narrow and filiform, central area entirely lacking. Specimens from Lake Michigan often have very delicate spines on the margins of the valves.

Numerous authors have commented on the difficulty of establishing the identity and range of morphologic variation in this taxon. Contrary to some previous reports we have found it to be relatively rare in Lake Michigan. It is tempting to treat it as a growth form or variety of *A. formosa*, but our observations lead us to believe that the two taxa are distinct.

BS ASFCRPVG ICT AC OF STATIONS 15

(46917	CH	12JA1946	0.25229)	(46515	CH	20FE1946	C.01138)	(46914	CH	19AP1946	C.CC427)
(46924	CH	10MY1946	0.0C353)	(46916	CH	4MY1947	1.43350)	(46919	CH	5JN1947	C.74050)
(46743	EV	20JN1937	0.0C42E)	(46749	EV	12MR1938	C.C3641)	(46751	EV	30MR1938	C.01117)
(46756	EV	27AP1938	0.0C336)	(1225	C 6	15MY1964	C.00392)	(1341	A 3	19AP1967	C.11716)
(1342	A 4	19AP1967	0.03066)	(1343	A 6	19AP1967	0.01251)	(1344	C 3	25AP1967	C.0C496)
(1372	C 5	5MY1967	0.00355)	(1453	E 3	15JL1967	C.C0758)	(1513	E 5	31AU1967	C.01520)
(1522	BH 1	18SE1967	0.26258)	(							

Genus *Bacillaria* Gmel.
Gmelin *in*: Linneaeus, Syst. Nat., ed. 13, Vol. 1, Part 6, p. 3903. 1788.

The only commonly recognized member of this genus occurs in periphyton communities and occasionally in the plankton of brackish and nearshore marine habitats. It is also found in saline springs and lakes and other waters containing high levels of total dissolved solids in inland regions. The few specimens noted in our collections were undoubtedly derived from such habitats.

Bacillaria paxillifer (O. F. Müll.) Hendy

Vibrio paxillifer O. F. Müller, Animal. Infus., p. 54. 1786.
Bacillaria paxillifer (O. F. Müll.) Hendy, Fish. Invest. (London), Ser. 4, Part 5, p. 274, pl. 21, fig. 5. 1964.

Coll: 1366.

Genus *Caloneis* Cleve

Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):46. 1894.

Members of the genus *Caloneis* find their primary habitats in periphyton or epipelic communities. The occasional representatives of the genus taken in plankton collections from Lake Michigan are undoubtedly derived from such habitats.

Caloneis alpestris (Grun.) Cleve

Navicula alpestris Grunow, Verh. Zool.-Bot. Ges. Wien, 10:545, pl. 5, fig. 4. 1860.
Caloneis alpestris (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):53. 1894.

87 CAALPEST TCT NC OF STATICNS 4

(46917	CH		12JA1946	0.CCC28)	(1504	A 3		28AU1967	0.00247)	(1388	GS12		12MY1967	C.CCe03)
(1552	SP 1		6CC1967	0.00660)	(									

Caloneis amphisbaena (Bory) Cleve

Navicula amphisbaena Bory, Encyclop. Method., p. 565. 1824.
Caloneis amphisbaena (Bory) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):58. 1894.

88 CAAMPHIS TCT NC OF STATICNS 3

(1520	HD 1		18SE1967	C.CC471)	(1417	HD 2		22MY1967	0.00374)	(1350	BH 2		19AP1967	C.CC22C)

Caloneis bacillaris var. *thermalis* (Grun.) A. Cleve

Navicula bacillaris var. *thermalis* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 12, fig. 27. 1880.
Caloneis bacillaris var. *thermalis* (Grun.) A. Cleve, Bih. K. Svenska Vet.-Akad. Handl., 21, Afd. 3(2):16. 1895.

91 CABACIVT TCT NC OF STATICNS 8

(46915	CH		5JN1947	0.00152)	(46758	EV		5JN1937	0.00357)	(46764	EV		17JL1937	C.03223)
(46757	EV		25JL1937	0.00481)	(46747	EV		1AU1937	0.00248)	(46760	EV		22SE1937	C.0C492)
(1567	GS15		5DC1967	C.0C159)	(1574	GS22		6DC1967	0.00288)	(				

Caloneis bacillum (Grun.) Cleve

Stauroneis bacillum Grunow, Verh. Zool.-Bot. Ges. Wien, 13:155, pl. 4, figs. 16a-b. 1863.
Caloneis bacillum (Grunow) Cleve, Diatomiste, 2(17):99. 1894.

89 CABACILL TCT NC OF STATIONS 17

(46921	CH	23ND1945	0.00065)	(46520	CH	20DE1946	0.00031)	(46916	CH		4MY1947	C.0C068)	
(46747	EV	1AU1937	0.0C495)	(46768	EV	16MR1938	0.01470)	(1245	F 2		11JN1964	C.CC346)	
(1258	F 1	6JL1964	0.00236)	(1284	E 6	17SE1964	0.00318)	(1285	F 1		15SE1964	C.01165)	
(1304	F 1	11OC1964	0.00247)	(1389	GS13	12MY1967	C.00258)	(1565	GS13		5DC1967	C.03042)	
(1567	GS15	5DC1967	0.00159)	(1574	GS22	6DC1967	0.01438)	(1546	LU 1		20C1967	C.00500)	
(1550	MR 1	5DC1967	0.01239)	(1350	BH 2	19AP1967	0.00441)	(					

Caloneis bacillum var. *lancettula* (Schulz) Hust.

Caloneis bacillum var. *lancettula* (Schulz) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas. Heft 10, Aufl. 2, p. 236, fig. 361. 1930.

90 CABACIVL TCT NC CF STATICNS 13

146764	EV	17JL1937	0.00806	)	146747	EV	14U1937	0.00248	)	146763	EV	23AU1937	0.08117)
146768	EV	16MR1938	0.02940	)	1272	C* 1	10SE1964	0.00410	)	1285	F 1	15SE1964	0.00582)
1306	F 3	11CC1964	0.00277	)	1387	GS11	12MY1967	0.00396	)	1388	GS12	12MY1967	0.01207)
1546	LU 1	20C1967	0.00500	)	1526	MC 1	20SE1967	0.00569	)	1529	RM 1	20SE1967	0.04797)
1530	FR 1	24SE1967	0.02000	)									

Caloneis clevei (Lagerst.) Cleve

Navicula clevei Lagerstedt, Bih. K. Svenska Vet.-Akad. Handl., 1:34, pl. 1, fig. 10. 1873.
Caloneis clevei (Lagerst.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):51. 1894.

92 CACLEVEI TCT NC CF STATICNS 1

1564	GS12	5DC1967	0.00165	)

Caloneis lewisii Patr.

Caloneis lewisii Patrick, Farlowia, 2(2):172. 1945.

93 CALEWISI TCT NC CF STATICNS 2

60973	CH	1876	0.02382	)	1565	GS13	5DC1967	0.00507)

Caloneis limosa (Kütz.) Patr.

Navicula limosa Kützing, Bacill., p. 101, pl. 3, fig. 50. 1844.
Caloneis limosa (Kütz.) Patrick *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:587, pl. 54, fig. 10. 1966.

94 CALIMCSA TCT NC CF STATICNS 1

3541	CH	1FE1881	0.00578	)

Caloneis ventricosa (Ehr.) Meist.

Navicula ventricosa Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1838:130, pl. 4, fig. 10i. 1839.
Caloneis ventricosa (Ehr.) Meister, Beitr. Kryptog.-Fl. Schweiz, 4(1)116, pl. 17, fig. 4. 1912.

Coll: 1157

Caloneis ventricosa var. *minuta* (Grun.) Patr.

Navicula ventricosa var. *minuta* Grunow *in*: Van Heurck, Syn. Diat. Belgique, p. 103. 1885.
Caloneis ventricosa var. *minuta* (Grun.) Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:584, pl. 54, fig. 2. 1966.

95 CAVENTVM TCT NC CF STATICNS 1

1521	SP 1	18SE1967	0.00577	)

Caloneis ventricosa var. *truncatula* (Grun.) Meist.

Navicula ventricosa var. *truncatula* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 12, fig. 25. 1880.
Caloneis ventricosa var. *truncatula* (Grun.) Meister, Beitr. Kryptog.-Fl. Schweiz, 4(1):116, pl. 17, fig. 5. 1912.

96 CAVERNIVI TOT NO OF STATIONS 30

(3540	CH	11MY1879	0.00932)	(3541	CH	1FE1881	0.01956)	146921	CH	23NO1545	C.0C129)
146923	CH	22ND1946	0.00437)	146520	CH	20DE1946	0.00031)	146905	CH	JA1947	C.00123)
146916	CH	4MY1947	0.00102)	146907	CH	JL1547	C.00049)	146922	CH	21AU1547	C.0C194)
146758	EV	5JN1937	0.03209)	146771	EV	11JN1937	0.00238)	146743	EV	20JN1937	C.02141)
146770	EV	9JL1937	0.01785)	146764	EV	17JL1937	0.04835)	146757	EV	25JL1937	C.02407)
146747	EV	1AU1937	0.01485)	146763	EV	23AU1937	C.06088)	146752	EV	15SE1937	C.C4354)
146760	EV	22SE1937	0.00492)	146750	EV	24SE1537	0.00471)	146748	EV	13OC1937	C.02135)
146767	EV	27CC1937	0.00387)	146745	EV	12MR1938	0.01214)	(1270	P 1	10AU1564	C.00272)
(1388	GS12	12MY1567	0.00603)	(1292	GS16	12MY1967	0.00308)	(1565	GS13	30C1967	C.C1521)
(1566	GS14	30C1967	0.00182)	(1574	GS22	6CC1567	C.00575)	(1545	WL 1	2CC1967	C.0C676)

Species *incertae sedis*

Caloneis sp. #2.

97 CASPECCB TOT NO OF STATIONS 1

146919	CH	5JN1947	0.00192)	(

Caloneis sp. #3.

98 CASPECCC TOT NO OF STATIONS 10

146S1C	CH	OC1545	C.0C109)	146758	EV	5JN1937	C.C1070)	146771	EV	11JN1937	C.CC238)
146770	EV	9JL1937	0.00596)	146764	EV	17JL1537	C.10475)	146757	EV	25JL1937	C.C3370)
146747	EV	1AU1537	0.01733)	146765	EV	30AU1537	C.CC558)	146752	EV	15SE1937	C.C4354)
(1388	GS12	12MY1967	0.01207)	(							

Genus *Campylodiscus* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:207. 1841.

The single species of *Campylodiscus* that occurs in our collections reaches its maximum abundance in epipelic communities in hardwater lakes. In such localities it is occasionally noted in the plankton and is apparently a successful facultative planktont.

Campylodiscus noricus var. *hibernica* (Ehr.) Grun.

Campylodiscus hibernicus Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:154. 1845.

Campylodiscus noricus var. *hibernica* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:439. 1862.

99 CPNGRIVH TOT NO OF STATIONS 1

160973	CH	1876	0.02362)	(

Genus *Capartogramma* Kuff.

Kufferath, Expl. Hydrobiol. Lake Tanganyika (1946-1947) Res. Sci. 4(3):27. 1956.

Only a single species of *Capartogramma* occurs in our collections. Previous reports of its distribution indicate that it reaches its maximum abundance in brackish water habitats although it is also found in limited abundance in strictly fresh water. In Lake Michigan its distribution appears to be restricted to shallow, eutrophied bays where it probably grows in epipelic or periphyton communities.

Capartogramma crucicula (Grun. *ex* Cleve) Ross

Schizostauron crucicula Grunow *ex* Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 18(5):16, pl. 3, fig. 44. 1881.
Capartogramma crucicula (Grur. *ex* Cleve) Ross, Bull. British Mus. (Nat. His.), 3(2):59, figs. 8-11. 1963.

100 CPSPECCA TCT NO OF STATIONS 3

(1395	GS15	13MY1967	C.00117)	(1571	GS15	6CC1967	C.00059)	(1550	PR 1	5CC1967	C.03717)			

Genus *Cocconeis* Ehr.
Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1835:173. 1837.

Members of the genus *Cocconeis* are particularly adapted to epiphytic growth on larger algae or on aquatic vascular plants. Plankton collections from Lake Michigan often contain at least a few representatives of the genus. Most of these are probably derived from communities other than the plankton but it appears that at least some of the smaller species are secondarily planktonic in that they attach to larger euplanktonic algae.

Cocconeis diminuta Pant.

Cocconeis diminuta Pantocsek, Res. Wiss. Erforsch. Balatonsees, Vol. 2. Pt. 2, Sec. 1, p. 67, pl. 7, fig. 181. 1902.

101 CCDIMINU TCT NO OF STATIONS 63

146766	EV	14DE1938	C.01584)	(1244	F 1	11JN1964	0.00110)	(1258	F 1	6JL1964	C.CC236)			
(1268	E 2	15AU1964	0.00274)	(1270	F 1	10AU1964	C.C0272)	(1279	E 1	16SE1964	C.CC393)			
(1300	E 3	13DC1964	0.CC358)	(1431	A 3	12JN1967	0.00257)	(1537	E 3	24SE1967	C.0C431)			
(1386	GS10	12MY1967	0.0C287)	(1387	GS11	11CC1967	C.01526)	(1383	CS 7	10MY1967	C.CC267)			
(1391	GS15	12MY1967	C.00479)	(1392	GS16	12MY1967	C.01188)	(1388	GS12	12MY1967	C.0C603)			
(1394	GS18	13MY1967	0.00516)	(1395	GS19	12MY1967	C.01233)	(1393	GS17	13MY1967	C.CC548)			
(1398	GS22	14MY1967	0.00304)	(1556	GS 1	13MY1967	C.00117)	(1396	GS20	13MY1967	C.CC074)			
(1557	GS 4	30C1967	0.00374)	(1558	GS 5	30C1967	C.01067)	(1556	GS 3	30C1967	C.C1564)			
(1560	GS 8	4CC1967	C.00472)	(1561	GS 9	40C1967	C.00793)	(1559	GS 7	40C1967	C.CC699)			
(1566	GS14	5CC1967	0.00103)	(1567	GS15	40C1967	C.00587)	(1565	GS13	50C1967	C.24845)			
(1572	GS20	6CC1967	0.0C180)	(1573	GS21	5CC1967	C.00318)	(1571	GS19	60C1967	C.0C234)			
(1575	GS28	6CC1967	0.00125)	(1544	MU 1	6CC1967	C.00112)	(1574	GS22	6CC1967	C.02013)			
(1546	LU 1	2CC1967	0.03001)	(1522	BP 1	2CC1967	C.00238)	(1547	PS 1	20C1967	C.0C798)			
(1525	PM 1	2CSE1967	0.04178)	(1526	MD 1	18SE1967	C.00182)	(1523	RA 1	19SE1967	C.CC923)			
(1529	KM 1	2CSE1967	0.03598)	(1530	FR 1	20SE1967	C.00569)	(1527	TR 1	20SE1967	C.02516)			
(1548	CA 1	3CC1967	0.01272)	(1549	MC 1	24SE1967	C.06001)	(1545	WL 1	2CC1967	C.C8109)			
(1550	PR 1	5DC1967	1.84612)	(1553	SG 1	4CC1967	C.02741)	(1551	ES 1	5DC1967	C.02396)			
(1427	LU 2	25MY1967	0.07264)	(1417	MC 2	6CC1967	C.03672)	(1426	PS 2	29MY1967	C.18898)			
(1401	MD 2	6MY1967	C.0C588)	(1354	GM 2	22MY1967	C.00748)	(1350	BM 2	19AP1967	C.04185)			
(1404	MG 2	10MY1967	0.02541)	(1405	ES 2	25AP1967	0.00690)	(1429	WL 2	25MY1967	C.01062)			
						12MY1967	0.01290)	(1407	SM 2	14MY1967	C.C1791)			

Cocconeis disculus (Schum.) Cleve

Navicula disculus Schumann, Schrift. Phys.-Ökon. Ges. Königsburg, 5:21, pl. 2, fig. 23. 1864.
Cocconeis disculus (Schum.) Cleve *in*: Cleve and Jentzsch, Schrift. Phys.-Ökon. Ges. Königsburg, 22:129. 1882.

102 CCDISCUL TCT NO OF STATIONS 18

(60973	CH	1876	0.02262)	(3541	CH	1FE1881	0.00978)	(1279	E 1	16SE1964	C.CC393)
(1541	E 2	11OC1967	0.00532)	(1294	GS18	13MY1967	C.00172)	(1396	GS20	13MY1967	C.00074)
(1554	GS 1	3CC1967	C.0C356)	(1557	GS 4	3CC1967	0.00374)	(1559	GS 7	40C1967	C.CC356)
(1561	GS 9	40C1967	0.00587)	(1567	GS15	50C1967	0.00159)	(1573	GS21	60C1967	0.00112)
(1574	GS22	60C1967	0.00288)	(1545	WL 1	2GC1967	0.01351)	(1550	PR 1	5OC1967	C.C2478)
(1553	SG 1	6DC1967	0.00734)	(1426	MS 2	29MY1967	0.03150)	(1354	GM 2	25AP1967	C.0C173)

Cocconeis pediculus Ehr.

Cocconeis pediculus Ehrenberg, Infusionsthierchen, p. 194, pl. 21, fig. 11. 1838.

103 COPECICU TCT NO OF STATICNS 100

I 3540	CH	11MY1879	0.03261	I 3567	CH	19FE1881	0.01132	146917	CH	12JA1946	C.00083
146914	CH	19AP1946	0.00107	146923	CH	22NO1946	0.00656	146920	CH	20DE1946	C.00062
146916	CH	4MY1947	C.00068	146919	CH	5JN1947	C.00303	146967	CH	JL1947	C.00C99
146922	CH	21AU1947	C.00194	146758	EV	5JN1937	C.02140	146770	EV	9JL1937	C.CC596
146764	EV	17JL1937	0.02417	146757	EV	25JL1937	C.02407	146747	EV	1AU1937	C.17328
146763	EV	23AU1937	3.77435	146765	EV	30AU1937	C.02231	146752	EV	15SE1937	4.64876
146760	EV	22SE1937	0.07878	146750	EV	24SE1937	C.07070	146744	EV	6DC1937	C.C3414
146748	EV	13DC1937	0.74722	146767	EV	27DC1937	C.03095	146749	EV	12MR1938	C.C5710
146768	EV	16MR1938	0.10290	146762	EV	18MR1938	3.52889	146751	EV	30MR1938	C.05582
146766	EV	14DE1938	0.02169	I 1272	C* 1	10SE1964	C.C0410	I 1278	D 6	18SE1964	C.CC384
I 1279	E 1	16SE1964	0.00393	I 1284	E 6	17SE1964	C.00318	I 1300	E 3	13DC1964	C.CC358
I 1316	D 6	9ND1964	C.00378	I 1452	E 2	14JL1967	C.C0213	I 1533	A 4	19SE1967	C.CC464
I 1534	A 6	19SE1967	0.00310	I 1536	E 2	24SE1967	C.02999	I 1537	E 3	24SE1967	C.C1725
I 1538	E 5	23SE1967	1.41413	I 1540	C 5	4DC1967	C.00496	I 1542	E 3	11DC1967	C.01526
I 1543	E 5	10DC1967	0.00718	I 1388	GS12	12MY1967	C.00803	I 1395	GS19	13MY1967	C.CC117
I 1397	GS21	13MY1967	0.00131	I 1398	GS22	14MY1967	C.00304	I 1557	CS 4	3DC1967	C.CC747
I 1559	GS 7	4CC1967	0.00699	I 1561	GS 9	4DC1967	C.01174	I 1563	GS11	5DC1967	C.00935
I 1564	GS12	5DC1967	C.00165	I 1565	GS13	5CC1967	C.01014	I 1566	GS14	5DC1967	C.CC550
I 1567	GS15	5DC1967	0.06668	I 1568	GS16	5DC1967	C.00433	I 1569	GS17	5DC1967	C.C5351
I 1570	GS18	5DC1967	0.02975	I 1571	GS19	6CC1967	C.00585	I 1572	GS2C	6DC1967	C.00180
I 1573	CS21	6CC1967	0.01.22	I 1574	GS22	6DC1967	C.08745	I 1575	GS2B	6DC1967	C.CC387
I 1547	MS 1	2DC1967	0.01597	I 1524	MI 1	2DSE1967	C.13135	I 1546	AU 1	2DC1967	C.10504
I 1520	MC 1	18SE1967	0.05658	I 1521	SP 1	18SE1967	C.04816	I 1522	BM 1	18SE1967	C.CC182
I 1523	AA 1	19SE1967	0.C3656C	I 1525	PB 1	20SE1967	C.38992	I 1526	MC 1	20SE1967	2.77084
I 1527	TR 1	20SE1967	4.12576	I 1528	SP 1	20SE1967	C.69304	I 1529	MB 1	2CSE1967	6.52356
I 1530	FR 1	24SE1967	C.38004	I 1531	GM 1	25SE1967	0.00845	I 1545	BL 1	2DC1967	1.62173
I 1548	CA 1	3DC1967	0.26714	I 1552	SM 1	4CC1967	C.03301	I 1550	PR 1	5DC1967	C.29541
I 1553	SG 1	8CC1967	0.00734	I 1426	MS 2	29MY1967	C.01050	I 1351	PI 2	21AP1967	C.05310
I 1427	LU 2	29MY1967	0.02421	I 1417	MC 2	22MY1967	C.00374	I 1350	BM 2	19AP1967	C.C7C48
I 1401	MQ 2	6MY1967	0.14699	I 1402	TR 2	6MY1967	C.05556	I 1400	SB 2	6MY1967	C.02383
I 1353	FR 2	23AP1967	0.01055	I 1354	GM 2	25AP1967	C.00345	I 1429	BL 2	29MY1967	C.C1062
I 1404	MQ 2	1CMY1967	0.01270	I 1407	SM 2	14MY1967	C.00597	I 1349	CI 2	19AP1967	C.C1078
I 1406	GB 2	13MY1967	0.01617	I 1419	BU 2	23MY1967	C.01831	I 1420	IM 2	23MY1967	C.C1511
I 1423	MA 2	25MY1967	0.00428	I							

Cocconeis placentula Ehr.

Cocconeis placentula Ehrenberg, Infusionsthierchen, p. 194. 1838.

104 COPLACEN TCT NC CF STATICNS 27

146751	EV	30MR1938	0.02232	I 1244	F 1	11JN1964	C.00110	I 1278	D 6	18SE1964	C.00384
I 1304	F 1	11DC1964	0.00247	I 1324	F 2	6ND1964	C.00233	I 1504	A 3	28AU1967	C.00247
I 1537	E 3	24SE1967	0.00863	I 1538	E 5	23SE1967	C.00552	I 1539	C 3	4DC1967	C.CC503
I 1540	C 5	4DC1967	0.01985	I 1541	E 2	11DC1967	C.00532	I 1542	E 3	11DC1967	C.01526
I 1555	GS 2	3CC1967	C.01059	I 1556	GS 7	4DC1967	C.00350	I 1562	GS1C	5DC1967	C.CC247
I 1567	GS15	5CC1967	0.00835	I 1569	GS17	5DC1967	C.00149	I 1572	GS2C	6DC1967	C.00090
I 1574	GS22	6CC1967	0.01151	I 1544	MU 1	20C1967	C.00715	I 1522	BM 1	18SE1967	C.00182
I 1531	GM 1	25SE1967	0.00845	I 1545	BL 1	2CC1967	C.02027	I 1428	MU 2	29MY1967	C.00904
I 1350	BM 2	19AP1967	0.01322	I 1404	MS 2	10MY1967	C.01270	I 1407	SM 2	14MY1967	C.00597

Cocconeis placentula var. *euglypta* (Ehr.) Cleve

Cocconeis euglypta Ehrenberg, Mikrogeol., pl. 34(6A), fig. 2. 1854.
Cocconeis placentula var. *euglypta* (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):170. 1896.

105 COPLACVE TCT NC CF STATICNS 127

160973	CH	1876	0.02362	I 3541	CH	19FE1881	0.01956	146910	CH	0C1945	C.00109
146921	CH	23NO1945	0.00065	146917	CH	12JA1946	C.00028	146923	CH	22NO1946	0.00696
146907	CH	JL1947	C.00095	146522	CH	21AU1947	0.00048	146743	EV	2GJN1937	C.CC428
146747	EV	1AU1937	0.00248	146752	EV	15SE1937	0.04354	146760	EV	22SE1937	C.00492
146768	EV	16MR1938	0.01470	146766	EV	14DE1938	C.01584	I 1229	D 5	14FY1964	C.CC623
I 1236	C* 1	8JN1964	C.0C175	I 1240	D 6	10JN1964	0.00153	I 1243	E 6	13JN1964	C.CC209
I 1244	F 1	11JN1964	0.00219	I 1245	F 2	11JN1964	C.00346	I 1258	F 1	6JL1964	C.01416
I 1259	F 2	6JL1964	C.01239	I 1260	F 3	6JL1964	0.00191	I 1264	C* 1	10AU1964	C.00579
I 1267	D 6	18AU1964	0.00216	I 1268	E 2	15AU1964	C.C1094	I 1270	F 1	10AU1964	C.01089
I 1279	E 1	16SE1964	0.01178	I 1280	E 2	16SE1964	C.00681	I 1284	E 6	17SE1964	C.01271
I 1285	F 1	15SE1964	0.11648	I 1286	F 2	15SE1964	C.01095	I 1287	F 3	15SE1964	C.00500
I 1289	C 7	14DC1964	0.00440	I 1291	C* 2	16DC1964	C.00245	I 1297	D 6	14DC1964	C.CC190
I 1299	E 2	12DC1964	0.00314	I 1302	E 5	13CC1964	C.00405	I 1303	E 6	13DC1964	C.CC560
I 1304	F 1	11CC1964	0.00247	I 1305	F 2	11DC1964	0.00173	I 1306	F 3	11DC1964	C.CC277
I 1341	A 3	19AP1967	0.C141C	I 1370	A 6	3MY1967	C.00230	I 1373	C 7	9MY1967	C.00285
I 1374	E 2	7MY1967	C.00299	I 1416	E 5	28MY1967	C.C1C93	I 1446	A 3	11JL1967	C.CC245
I 1448	A 6	10JL1967	C.CC354	I 1511	E 2	15E1967	C.00614	I 1533	A 4	19SE1967	C.CC464
I 1536	E 2	24SE1967	0.00565	I 1538	E 5	23SE1967	C.C1657	I 1540	C 5	4CC1967	C.CC496
I 1542	E 3	11DC1967	0.07628	I 1543	E 5	10CC1967	0.01437	I 1377	GS 1	9MY1967	C.CC396
I 1380	GS 4	9MY1967	0.00168	I 1383	GS 7	10MY1967	C.00535	I 1385	CS 9	10MY1967	C.CC235
I 1386	GS10	12MY1967	0.00575	I 1387	GS11	12MY1967	0.02772	I 1388	GS12	12MY1967	C.03620
I 1390	GS14	12MY1967	C.01174	I 1392	GS16	12MY1967	0.02157	I 1393	GS17	13MY1967	C.CC274
I 1394	GS18	13MY1967	0.00172	I 1355	GS19	13MY1967	C.00470	I 1398	GS22	14MY1967	C.CC304
I 1554	CS 1	3DC1967	0.02846	I 1555	GS 2	3CC1967	C.39901	I 1556	GS 3	3CC1967	C.1C429
I 1557	GS 4	3DC1967	0.07474	I 1558	GS 5	4DC1967	C.05549	I 1559	CS 7	4DC1967	C.16C87
I 1560	GS 8	4CC1967	0.0614C	I 1561	GS 9	4DC1967	C.01174	I 1562	GS10	5DC1967	C.CC740
I 1563	GS11	5DC1967	0.01871	I 1564	GS12	5DC1967	C.00329	I 1565	GS13	5DC1967	C.05578
I 1566	GS14	5DC1967	C.01101	I 1567	GS15	5GC1967	C.04287	I 1568	GS16	5DC1967	C.CC577
I 1569	GS17	5DC1967	0.00297	I 1570	GS18	5DC1967	C.01967	I 1571	GS19	6DC1967	C.08195

1572	G520	05C1967	C.00781	1570	G521	06C1967	C.00898	1574	G522	06DC1967	C.00592
1575	G528	06C1967	0.01077	1566	PU 1	20CC1967	C.01430	1567	PS 1	20CC1967	C.00307
1524	PI 1	20SE1967	C.70620	1560	LU 1	20CC1967	C.09003	1520	MO 1	18SE1967	C.CC949
1521	SM 1	18SE1967	0.02885	1522	BM 1	18SE1967	0.03100	1526	MO 1	20SE1967	C.04551
1527	TR 1	20SE1967	0.11321	1529	BA 1	20SE1967	C.04707	1530	PR 1	24SE1967	C.11001
1531	GH 1	23SE1967	0.02538	1569	ML 1	25CC1967	C.09732	1568	CA 1	30CC1967	C.03272
1549	MO 1	04DC1967	0.05224	1551	ES 1	5CC1967	C.27057	1552	SM 1	4DC1967	C.07962
1550	PR 1	5CC1967	19.85925	1553	SS 1	6DC1967	C.08079	1428	PU 2	29PP1967	C.02209
1426	MS 2	29PP1967	0.02180	1427	LU 2	29PP1967	0.02621	1417	MO 2	22PP1967	C.02243
1418	SM 2	22PP1967	0.01555	1390	BM 2	19AP1967	1.33918	1401	MO 2	6PP1967	C.04116
1402	TR 2	6PP1967	0.02707	1400	SB 2	6PP1967	0.01787	1392	BA 2	21AP1967	C.01718
1394	GH 2	25AP1967	0.00345	1403	CA 2	10PP1967	0.01308	1404	PG 2	10PP1967	C.11163
1405	ES 2	12PP1967	0.01225	1407	SM 2	14PP1967	0.04777	1408	CB 2	13PP1967	C.01348
1422	GA 2	23PP1967	0.00511								

Cocconeis placentula var. *lineata* (Ehr.) V. H.

Cocconeis lineata Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1847, pl. 5(1), fig. 10. 1849.
Cocconeis placentula var. *lineata* (Ehr.) Van Heurck, Syn. Diat. Belgique, p. 133. 1885.

106 CCPLACVL TCT NC OF STATICNS 49

1396	G520	13PP1967	C.00074	1397	G521	13PP1967	C.00065	1556	GS 1	30CC1967	C.00712
1555	GS 2	3CC1967	0.09067	1556	GS 3	3DC1967	0.05736	1557	GS 4	3DC1967	C.CC376
1558	GS 5	4CC1967	C.01189	1559	GS 7	4CC1967	C.02098	1561	GS 9	4DC1967	C.0C587
1563	GS11	5FC1967	0.00468	1565	GS13	5CC1967	C.02028	1566	GS14	5DC1967	C.00183
1567	GS15	3CC1967	0.01744	1569	GS17	5CC1967	0.00446	1570	GS18	5DC1967	C.42642
1571	GS19	6CC1967	0.00995	1573	GS21	6DC1967	0.00224	1575	GS20	6DC1967	C.01032
1564	PU 1	20CC1967	0.01668	1547	MS 1	20CC1967	C.07984	1528	PI 1	20SE1967	C.94729
1546	LU 1	20CC1967	0.09582	1520	MO 1	18SE1967	0.02957	1521	SM 1	18SE1967	C.C1154
1522	BM 1	18SE1967	0.01276	1527	TR 1	20SE1967	0.09446	1529	BA 1	20SE1967	C.04797
1530	PR 1	24SE1967	0.02000	1531	GH 1	23SE1967	0.00845	1549	ML 1	2DC1967	0.29732

1568	CA 1	3CC1967	0.08905	1569	MS 1	9CC1967	C.12336	1551	ES 1	5DC1967	C.C7994
1552	SM 1	4CC1967	0.01321	1550	MR 1	5CC1967	3.56833	1553	SS 1	4CC1967	C.C2201
1428	PU 2	29PP1967	0.01000	1426	MS 2	29PP1967	C.43065	1471	PI 2	21AP1967	C.CC621
1427	LU 2	29PP1967	0.07264	1417	MO 2	22PP1967	C.01122	1350	BM 2	19AP1967	C.05190
1394	GH 2	25AP1967	0.03652	1429	ML 2	25PP1967	0.05308	1404	PG 2	10PP1967	C.12703
1405	ES 2	12PP1967	0.02588	1407	SM 2	14PP1967	0.04777	1349	CB 2	19AP1967	C.00718
1400	CB 2	13PP1967	0.02157								

Cocconeis thumensis A. Mayer

Cocconeis thumensis A. Mayer, Bayerisch Kryptog. Forsch., 1:199, pl. 6, fig. 24. 1919.

107 CCTHUMEN TCT NC OF STATICNS 21

60972	CH	1976	0.02702	600516	CH	6PP1967	C.00034	1255	B 5	15JL1964	C.CC257
1256	B 2	14JL1964	0.00101	1250	B 2	6JL1964	0.00310	1260	B 2	15JL1964	C.CC274
1279	B 1	16SE1964	0.00393	1285	B 1	15SE1964	C.01165	1251	C* 2	14DC1964	C.CC249
1294	D 3	15CC1964	C.00330	1311	D 1	8DC1964	0.00298	1246	C 3	25AP1967	C.CC189
1347	E 2	23AP1967	0.00367	1370	A 1	3PP1967	C.00230	1375	B 3	7PP1967	C.00241
1543	E 5	6DCC1967	0.00718	1382	GS 6	10PP1967	C.00278	1392	GS10	12PP1967	C.CC308
1394	GS10	13PP1967	0.00172	1555	GS 2	3CC1967	0.01059	1557	GS 4	3DC1967	C.CC376

Species *incertae sedis*

Cocconeis sp. #2.

108 CCSPECCB TCT NC OF STATICNS 17

60905	CH	6PP1967	0.00655	1250	B 1	6JL1964	C.00236	1279	B 1	16SE1964	C.CC393
1285	B 1	15SE1964	0.01165	1541	B 2	11DC1967	C.00932	1395	GS19	13PP1967	C.00117
1554	GS 1	3CC1967	0.00354	1555	GS 2	3CC1967	C.00353	1556	GS 3	3DC1967	C.00521
1562	GS1C	9CC1967	0.00267	1573	GS21	6DC1967	C.00112	1574	GS22	6DC1967	C.01151
1527	TR 1	20SE1967	0.01250	1530	PR 1	24SE1967	C.01000	1545	BA 1	2DC1967	C.00670
1550	PR 1	5CC1967	0.02478	1350	BM 2	19AP1967	C.00441				

Cocconeis sp. #3.

109 CCSPECCC TCT NC OF STATICNS 9

3940	CH	11PP1870	0.00466	1250	B 1	15AL1964	C.00274	1270	B 1	16AL1964	C.C1C09
1303	E A	13DC1964	0.00500	1304	B 1	11DC1964	C.00247	1313	B 2	9DC1964	C.0C193
1345	C 5	25AP1967	C.CC195	1541	B 2	11CC1967	C.01064	1543	B 5	10CC1967	C.CC718

Cocconeis sp. #4.

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110  COSPECCD TOT NO OF STATIONS   11

(46768    EV       16MR1938   0.01470 )   ( 1305    F 2      11OC1964   0.00173 )   ( 1452    E 2      14JL1967   0.00213 )
( 1392    GS16     12MY1967   0.00308 )   ( 1396    GS20     13MY1967   0.00074 )   ( 1398    GS22     14MY1967   0.00304 )
( 1550    GS 5      4OC1967   0.00396 )   ( 1565    GS13      9OC1967   0.02535 )   ( 1526    MO 1     20SE1967   0.00569 )
( 1527    TR 1     20SE1967   0.00629 )   ( 1350    BM 2     19AP1967   0.00661 )   (
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Cocconeis sp. #5.

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111  COSPECCE TOT NO OF STATIONS    3

( 1279    E 1      16SE1964   0.00393 )   ( 1530    FR 1     24SE1967   0.01000 )   ( 1545    WL 1     20C1967   0.00676 )
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Cocconeis sp. #6.

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112  COSPECOF TOT NO OF STATIONS    4

( 1449    C 3      16JL1967   0.00382 )   ( 1557    GS 4      3OC1967   0.00374 )   (
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Genus *Coscinodiscus* Ehrenberg

Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1838:128. 1840.

Coscinodiscus subsalsa Juhl.-Dannf.

Coscinodiscus subsalsa Juhlin-Dannfelt, Bih. K. Svenska Vet.-Akad. Handl., 6(21):47, pl. 3, fig. 33. 1882.

Cells circular in valve view and rectangular in girdle view. Vegetative cells occur singly or in short colonies of up to 10 cells. Valves of specimens from Lake Michigan 16-42μ in diameter. The valve surface may be either simply concave or concave near the margins and convex in the middle. Ornamentation of the valve surface is composed of conspicuous areolae which are circular in surface focus and more or less hexagonal in deep focus. Areolae in the central portion of the valve coarse, about 10 in 10μ, becoming much finer, about 20 in 10μ, near the margins. Near the periphery of the valve there are several (usually 4-6) slime pores each subtended by a fungiform projection into the interior of the frustule. In living cells long, gelatinous strands extend from these pores. The ornamentation of the valve surface tends to be arranged in loose fascicles that focus on the pores giving a stellate appearance.

The systematic position of this entity is somewhat uncertain. Many authorities consider it to be a variety or form of either *C. rothii* or *C. subtilis*. Its recorded distribution indicates a preference for brackish water or waters of high total dissolved solids in inland regions. At the present time it is established in polluted harbors and nearshore waters of Lake Michigan and has become one of the dominant species in the summer plankton of Lake Erie.

113 CSPOTPHYS TOT NO OF STATIONS 13

(1230	E 2	16MY1964	0.00298)	(1259	E 2	8JL1964	0.00310)	(1264	C* 1	10AU1964	0.01945)
(1265	C* 2	10AU1964	0.00224)	(1272	C* 1	10SE1964	0.01231)	(1279	E 1	16SE1964	0.00393)
(1298	E 1	12OC1964	0.00269)	(1362	E 5	13OC1964	0.00405)	(1408	A 3	23MY1967	0.00447)
(1416	E 5	28MY1967	0.00219)	(1536	E 2	24SE1967	0.00273)	(1539	C 3	40C1967	0.00503)
(1568	G510	5OC1967	0.00144)	(							

Species *incertae sedis*

Coscinodiscus sp. (aff. *C. tuberculatus*).

114 CSTUBEVQ TOT NO OF STATIONS 1

(1264	C* 1	10AU1964	0.00386)

Genus *Cyclotella* Kütz.

Kützing, Syn. Diat. p. 7. 1834.

Cyclotella antiqua Wm. Smith

Cyclotella antiqua Wm. Smith, Syn. British Diat., p. 28, pl. 5, fig. 49. 1853.

Cells cylindrical with concentrically undulate valves, either concave or convex in the center. Specimens from Lake Michigan from 12-30μ in diameter. The marginal zone is narrow, only about one-third the radius of the valve. The marginal striae are about 16-18 in 10μ at the margin, without visible substructure and irregular in length. Regularly spaced thickened ribs, below the plane of focus of the striae, appear as "shadow lines" near the margin of the valve, about 5-7 in 10μ. The margin of the central area of the valve is ornamented with conspicuous conical depressions of the surface whose surface is covered with fine, irregularly arranged puncta. The base of the conical depression is toward the valve margin and the apex toward the center. The number of these depressions is variable, depending on the size of the valve, but usually 6-8 are present. The rest of the central surface of the valve may be without ornamentation or may have a greater or lesser number of randomly arranged punctae of varying sizes.

This species is very distinctive in appearance and is not easily confused with any other member of the genus occurring in Lake Michigan. It is never a numerically important part of the plankton populations of the lake but numerous examples have been found, particularly in samples from the northern portion of the lake. Previous reports of its distribution indicate that it reaches its greatest abundance in northern and alpine oligotrophic lakes.

111 CYANTIGU ICY AC CF STATICAS 13

(1270	F 1	1CAU1564	0.03812)	(1285	F 1	155E1964	C.04077)	(1291	C' 2	16GC1564	C.CC245)
(1387	GS11	12MY1567	0.00396)	(1397	GS21	13MY1967	C.00065)	(1557	GS 4	30C1967	C.00374)
(1558	GS 5	40C1567	C.01189)	(1559	GS 7	4CC1567	C.00699)	(1560	GS 8	40C1567	C.C1417)
(1561	GS 9	40C1967	0.00587)	(1562	GS10	50C1967	0.01727)	(1548	CA 1	30C1967	C.C1272)
(1549	PG 1	40C1567	0.02741)	(							

Cyclotella atomus Hust.

Cyclotella atomus Hust., Archiv f. Hydrobiol., Suppl. Bd. 15:143, pl. 9, figs. 1-4. 1938.

Cells cylindrical with excentrically undulate valves. Specimens from Lake Michigan 2.5-5μ in diameter. The marginal zone is narrow, only one-quarter the radius of the valve. The marginal striae are about 16-18 in 10μ, without visible substructure. The striae appear as thickened ribs under the light microscope and every fourth or fifth one appears to be more thickened than the others. The only visible ornamentation in the central portion of the valve is a single, rather large, puncta. This structure is usually located about one-half the distance from the center of the valve to inner edge of the marginal striae. Because of the uniformly small size of this species the undulation of the valve can only be seen from the girdle view. The cells are rectangular in girdle view with the length of the pervalvar axis being about one-half the valve diameter.

Although this species was originally described from the tropics, its distinctive morphology leaves little doubt of the correct assignment of the specimens from Lake Michigan to it. At present it is quite rare in the flora of the lake. Our records come from inshore areas that receive appreciable chloride contamination. Previous reports from Lake Michigan are lacking.

116 CYATOMUS TCT NO OF STATIONS 8

(1240	D 6	10JN1964	0.00153)	(1255	D 5	15JL1964	0.00257)	(1273	C' 2	10SE1964	C.00538)
(1446	A 3	11JL1967	0.00245)	(1451	C 7	16JL1967	0.00394)	(1520	HO 1	18SE1967	C.00943)
(1521	SH 1	18SE1967	0.01154)	(1350	BH 2	19AP1967	0.42290)	(			

Cyclotella comta (Ehr.) Kütz.

Discoplea comta Ehr., Ber. Akad. Wiss. Berlin, 1842:267. 1844.
Cyclotella comta (Ehr.) Kütz., Sp. Alg., p. 20. 1849.

Cells cylindrical with concentrically undulate valves, either concave or convex in the center. Specimens from Lake Michigan 7.5-55μ in diameter. Marginal zone about one-half the radius of the valve. Striae in the marginal zone about 13-18 in 10μ at the valve margin, with barely visible substructure composed of two rows of fine puncta. This feature can be resolved with certainty only in the larger individuals. Most of the striae are of the same length and form an even inner margin, but numerous shortened striae of irregular length are interposed between them and there are often 1-6 more or less conspicuous slime pores at the margin of the zone that are subtended by shortened striae. At the outer margin of the valve a row of chambers occurs below the level of the striae. One of these chambers usually subtends the base of two striae and appears as a "shadow line" between the striae pairs at high focus. In the smaller individuals these chambers appear as thickenings near the margin of the valve. The ornamentation of the central area is highly irregular in this taxon. In the larger individuals the central area is ornamented with randomly arranged small puncta. In the smaller individuals the puncta become compressed and may assume a more or less regular appearance. Many authorities distinguish several varieties on the basis of the arrangement of the central punctae. While this segregation appears feasible when working with isolated populations, our observations lead us to believe that the cited variations grade into one another so that no morphologic distinction can be made.

117 CYCLOTA TCT NO OF STATIONS 302

(60973	CH	1876	2.92867)	(3540	CH	11MY1875	0.13978)	(3541	CH	1FE1881	1.54553)
(3507	CH	15FE1881	0.05660)	(46510	CH	CC1945	0.02403)	(46921	CH	23ND1945	C.12611)
(46908	CH	LE1945	0.03021)	(46517	CH	12JA1946	0.09898)	(46915	CH	20FE1946	C.06829)
(46914	CH	15AP1946	0.03097)	(46524	CH	10MY1946	0.02681)	(46923	CH	22AC1946	C.71032)
(46920	CH	20DE1946	0.24032)	(46905	CH	JA1947	0.10173)	(46909	CH	MR1947	C.17303)
(46912	CH	AP1947	0.01150)	(46516	CH	4MY1947	C.00441)	(46906	CH	MY1947	C.01858)
(46919	CH	5JN1947	0.01062)	(46907	CH	JL1947	0.10651)	(46913	CH	6AU1947	C.05230)
(46922	CH	21AU1947	2.58315)	(46758	EV	5JN1937	C.00357)	(46771	EV	11JN1937	C.01426)
(46743	EV	20JN1937	0.00856)	(46770	EV	9JL1937	0.01193)	(46764	EV	17JL1937	C.01612)
(46757	EV	25JL1937	0.00259)	(46747	EV	1AU1937	C.07674)	(46763	EV	23AU1937	C.36526)
(46765	EV	30AU1937	0.93698)	(46769	EV	7SE1937	1.34607)	(46752	EV	15SE1937	1.61080)
(46760	EV	22SE1937	2.48166)	(46750	EV	24SE1937	C.29222)	(46744	EV	6OC1937	C.12193)
(46748	EV	13OC1937	C.17079)	(46767	EV	27CC1937	0.05802)	(46749	EV	12MR1938	C.03641)
(46768	EV	16MR1938	0.02940)	(46762	EV	18MR1938	C.30878)	(46756	EV	27AP1938	0.01007)
(46759	EV	19MY1938	0.01013)	(46761	EV	27MY1938	C.00273)	(46766	EV	14DE1938	C.03169)
(1223	B 3	18MY1964	0.00156)	(1225	C 6	15MY1964	0.00392)	(1226	C 7	16MY1964	C.00381)
(1227	C' 2	13MY1964	0.00219)	(1228	D 2	14MY1964	C.00584)	(1229	D 5	14MY1964	C.01480)
(1230	E 2	16MY1964	0.00593)	(1231	E 3	16MY1964	0.00978)	(1232	E 5	16MY1964	C.04348)
(1233	B 3	5JN2964	0.00714)	(1439	B 6	5JN1964	C.00200)	(1236	C' 1	8JN1964	C.00350)
(1237	C' 2	8JN1964	0.00258)	(1238	D 3	11JN1964	C.01600)	(1239	D 4	11JN1964	C.00116)
(1240	D 6	10JN1964	0.00460)	(1242	E 3	13JN1964	C.00150)	(1243	E 6	13JN1964	C.01462)
(1244	F 1	11JN1964	0.00548)	(1245	F 2	11JN1964	C.00692)	(1246	F 3	11JN1964	C.04781)
(1247	B 3	14JL1964	C.19209)	(1248	B 3	24JL1964	2.06905)	(1440	B 6	11JL1964	C.05528)
(1441	B 6	24JL1964	0.30838)	(1249	C 3	8JL1964	C.00815)	(1250	C 6	10JL1964	0.14388)
(1251	C 7	16JL1964	0.09271)	(1252	C' 1	16JL1964	0.01674)	(1253	C' 2	16JL1964	C.23279)
(1254	D 2	15JL1964	0.01532)	(1255	D 5	15JL1964	0.17966)	(1256	E 2	14JL1964	C.01466)
(1257	E 3	14JL1964	0.02153)	(1258	F 1	6JL1964	0.12507)	(1259	F 2	6JL1964	C.15493)
(1260	F 3	6JL1964	C.13370)	(1261	B 3	2AU1964	0.75555)	(1262	B 3	17AU1964	1.10248)
(1442	B 6	2AU1964	0.12282)	(1443	B 6	16AU1964	C.46258)	(1263	C 7	15AU1964	1.54123)
(1264	C' 1	10AU1964	0.81094)	(1265	C' 2	10AU1964	C.31297)	(1266	D 3	18AU1964	1.06637)
(1267	D 6	18AU1964	0.15132)	(1268	E 2	15AU1964	1.43615)	(1269	E 3	15AU1964	1.15113)
(1270	F 1	10AU1964	5.33696)	(1444	B 6	19SE1964	2.97C69)	(1271	C 7	22SE1964	C.2C892)
(1272	C' 1	10SE1964	0.57464)	(1273	C' 2	10SE1964	0.60218)	(1274	D 1	17SE1964	C.47858)
(1275	D 2	17SE1964	0.90317)	(1276	D 3	18SE1964	0.32409)	(1277	D 4	18SE1964	1.38803)
(1278	D 6	18SE1964	0.08455)	(1279	E 1	16SE1964	C.20419)	(1280	E 2	16SE1964	C.24508)

(1281	E 3	16SE1964	0.29039)	(1282	E 4	16SE1964	0.55402)	(1283	E 5	16SE1964	2.78901)
(1284	E 6	17SE1964	0.81340)	(1285	F 1	15SE1964	3.05748)	(1286	F 2	15SE1964	1.53240)
(1287	F 3	15SE1964	2.27682)	(1288	B 3	15OC1964	C.C1088)	(1445	B 6	14OC1964	C.74364)
(1289	C 7	14OC1964	0.12313)	(1290	C* 1	16OC1964	C.23877)	(1291	C* 2	16CC1964	C.64403)
(1292	D 1	15OC1964	0.30933)	(1293	D 2	15CC1964	C.C8490)	(1294	D 3	15DC1964	C.57685)
(1295	D 4	15QC1964	1.04055)	(1296	D 5	14QC1964	0.68852)	(1297	D 6	14CC1964	C.02475)
(1298	E 1	12OC1964	0.05924)	(1299	E 2	12OC1964	0.24191)	(1300	E 3	13OC1964	C.62645)
(1301	E 4	13CC1964	0.30911)	(13C2	E 5	13OC1964	2.55081)	(13C3	E 6	13DC1964	C.29106)
(1304	F 1	11OC1964	0.11113)	(13C5	F 2	11OC1964	0.04658)	(1306	F 3	11DC1964	C.1C533)
(1307	B 6	NC1964	0.15514)	(13C8	C 7	6NO1964	0.02737)	(1309	C* 1	10NC1964	C.1C130)
(1310	C* 2	10NO1964	0.29252)	(1311	D 1	8NO1964	C.10577)	(1312	D 3	9NC1964	C.C8687)
(1314	D 4	9NO1964	C.1C048)	(1315	D 5	9NO1964	0.02730)	(13 6	D 6	9NC1964	C.CC378)
(1317	E 1	6NO1964	C.2C675)	(1318	E 2	7NC1964	0.13317)	(1319	E 3	7NO1964	C.2C161)
(1320	E 4	7NO1964	0.08687)	(1321	E 5	7NO1964	C.03511)	(1322	E 6	7NC1964	0.00667)
(1323	F 1	6NC1964	0.08223)	(1324	F 2	6NO1964	0.13975)	(1325	F 3	6NO1964	C.CC756)
(1336	C 3	27JA1967	0.00578)	(1337	C 3	2MR1967	0.02205)	(1338	C 3	28MR1967	C.C1454)
(1339	C 5	28MR1967	0.02182)	(1340	C 7	28MR1967	C.00145)	(1341	A 3	19AP1967	C.C1193)
(1342	A 4	19AP1967	0.06136)	(1343	A 6	19AP1967	0.00208)	(1344	C 3	25AP1967	C.00165)
(1345	C 5	25AP1967	0.01559)	(1346	C 7	21AP1967	C.00267)	(1347	E 2	23AP1967	C.CC325)
(1348	E 5	23AP1967	0.00685)	(1368	A 3	4MY1967	0.00628)	(1370	A 6	3MY1967	0.01611)
(1371	C 3	4MY1967	0.00231)	(1372	C 5	5MY1967	0.00355)	(1373	C 7	5MY1967	C.01426)
(1374	E 2	7MY1967	0.00295)	(1375	E 3	7MY1967	0.00722)	(1376	E 5	6MY1967	0.00562)
(1408	A 3	23MY1967	0.00447)	(1410	A 6	24MY1967	C.C1128)	(1411	C 3	31MY1967	C.C5334)
(1412	C 5	31MY1967	0.00842)	(1413	C 7	25MY1967	0.00632)	(1431	A 3	12JN1967	C.CC515)
(1432	A 4	13JN1967	0.00766)	(1433	C 3	17JN1967	C.02584)	(1434	C 5	17JN1967	C.0C598)
(1436	E 2	15JN1967	0.00724)	(1446	A 3	11JL1967	0.01223)	(1447	A 4	11JL1967	C.0C468)
(1449	C 3	16JL1967	0.20253)	(1450	C 5	16JL1967	C.08569)	(1451	C 7	16JL1967	C.0C197)
(1452	E 2	14JL1967	0.00213)	(1453	E 3	15JL1967	0.01769)	(1454	E 5	15JL1967	C.04001)
(1504	A 3	28AU1967	2.07382)	(1505	A 4	28AU1967	1.80357)	(1506	A 6	29AU1967	0.C7846)
(1508	C 3	25E1967	0.27975)	(1509	C 5	25E1967	3.53286)	(1510	C 7	29AU1967	C.48688)
(1511	E 2	15E1967	2.14876)	(1512	E 3	15E1967	C.82456)	(1513	E 5	31AU1967	1.29725)
(1532	A 3	18SE1967	0.04599)	(1533	A 4	19SE1967	0.15783)	(1534	A 6	19SE1967	C.15512)
(1535	C 7	20SE1967	0.1706C)	(1536	E 2	24SE1967	C.41992)	(1537	E 3	24SE1967	9.66100)
(1538	E 5	23SE1967	1.41413)	(1539	C 3	4CC1967	0.2063C)	(1540	C 5	4CC1967	3.82191)
(1541	E 2	11OC1967	0.74504)	(1542	E 3	11CC1967	12.10334)	(1543	E 5	10DC1967	C.85476)
(1377	GS 1	9MY1967	0.00792)	(1378	GS 2	9MY1967	C.C0421)	(1379	GS 3	9MY1967	C.04642)
(1380	GS 4	9MY1967	C.C1009)	(1381	GS 5	10MY1967	0.01193)	(1382	GS 6	10MY1967	C.C1943)
(1383	GS 7	10MY1967	0.03743)	(1384	GS 8	10MY1967	0.05731)	(1385	GS 9	10MY1967	C.04709)
(1386	GS10	12MY1967	0.08044)	(1387	GS11	12MY1967	1.06543)	(1388	GS12	12MY1967	6.16591)
(1389	GS13	12MY1967	C.84C57)	(139C	GS14	12MY1967	1.00411)	(1391	GS15	12MY1967	1.1732C)
(1392	GS16	12MY1967	0.67803)	(1393	GS17	13MY1967	1.24644)	(1394	GS18	13MY1967	C.52293)
(1395	GS19	13MY1967	0.12683)	(1396	GS20	13MY1967	0.04143)	(1397	GS21	13MY1967	C.C1177)
(1398	GS22	14MY1967	0.02732)	(1554	GS 1	30C1967	0.16011)	(1555	GS 2	30C1967	2.96610)
(1556	GS 3	30C1967	5.84033)	(1557	GS 4	30C1967	3.13901)	(1558	CS 5	40C1967	8.04661)
(1559	GS 7	40C1967	4.16171)	(1560	GS 8	40C1967	13.88561)	(1561	GS 9	40C1967	5.34132)
(1562	GS10	5CC1967	2.59042)	(1563	GS11	50C1967	1.80050)	(1564	GS12	50C1967	C.39338)
(1565	GS13	5DC1967	0.21296)	(1566	GS14	50C1967	0.28068)	(1567	GS15	50C1967	3.11190)
(1568	GS16	50C1967	0.67243)	(1569	GS17	5CC1967	4.16214)	(1570	GS18	5DC1967	4.77088)
(1571	GS19	6DC1967	0.02400)	(1572	GS20	60C1967	0.00631)	(1573	GS21	60C1967	C.19150)
(1574	GS22	6DC1967	0.34225)	(1575	GS28	6DC1967	0.18063)	(1544	PU 1	20C1967	C.C2621)
(1547	MS 1	20C1967	C.19960)	(1524	MI 1	20SE1967	0.08757)	(1546	LU 1	2QC1967	C.1C004)
(1520	MO 1	18SE1967	0.20274)	(1521	SH 1	18SE1967	C.05193)	(1523	BA 1	15SE1967	C.04613)
(1525	PW 1	2CSE1967	C.06963)	(1526	MC 1	20SE1967	0.15930)	(1527	TR 1	20SE1967	C.C7547)
(1528	SB 1	2CSE1967	3.92723)	(1529	KN 1	20SE1967	1.00731)	(1530	FR 1	24SE1967	C.22002)
(1531	GM 1	25SE1967	0.01691)	(1545	WL 1	20C1967	C.79735)	(1548	CA 1	30C1967	1.5C108)
(1549	MQ 1	4CC1967	2.08305)	(1551	ES 1	5QC1967	5.36784)	(1552	SM 1	6DC1967	C.41598)
(1550	PP 1	5CC1967	0.28497)	(1553	SG 1	6CC1967	1.99765)	(1428	PU 2	29MY1967	C.01507)
(1426	MS 2	29MY1967	0.C1050)	(1351	MI 2	21AP1967	C.C1552)	(1427	LU 2	29MY1967	C.26634)
(1417	MO 2	22MY1967	0.01122)	(1418	SH 2	22MY1967	0.03110)	(1350	BH 2	15AP1967	C.0C441)
(1425	BA 2	25MY1967	0.01768)	(1399	PW 2	5MY1967	0.00680)	(14C1	MC 2	6MY1967	C.C2352)
(1402	TR 2	6MY1967	0.01624)	(14C0	SB 2	6MY1967	C.02978)	(1352	FW 2	21AP1967	C.06872)
(1353	FR 2	23AP1967	C.01055)	(1354	GH 2	25AP1967	0.00173)	(1429	WL 2	29MY1967	C.C4247)
(1403	CA 2	10MY1967	0.28769)	(1404	MG 2	10MY1967	C.17785)	(1405	ES 2	12MY1967	C.40635)
(1407	SM 2	14MY1967	0.07165)	(1349	CI 2	19AP1967	0.00359)	(1619	BU 2	23MY1967	C.12816)
(1420	IM 2	23MY1967	0.03021)	(1421	CH 2	23MY1967	0.15614)	(1622	GA 2	23MY1967	C.02555)
(1423	WA 2	25MY1967	0.02565)	(1424	KN 2	25MY1967	0.02665)	(			

110 CYCCMTVB TCT NO OF STATIONS 107

(60973	CH	1876	0.73217)	(3540	CH	11MY1875	0.00466)	(3541	CH	1FE1881	C.17607)
(46921	CH	23NO1945	0.00065)	(46517	CH	12JA1946	0.00083)	(46914	CH	19AP1946	C.CC107)
(46923	CH	22NO1946	0.1C528)	(46520	CH	20DE1946	0.04344)	(46905	CH	JA1947	C.01348)
(46906	CH	MY1947	0.00066)	(46507	CH	JL1947	C.00099)	(46922	CH	21AU1947	C.02617)
(46745	EV	3JL1937	C.C2090)	(46747	EV	1AU1937	0.00495)	(46763	EV	23AU1937	C.1C146)
(46765	EV	30AU1937	0.07250)	(46769	EV	*SE1937	C.06513)	(46752	EV	15SE1937	C.13061)
(46760	EV	22SE1937	0.39391)	(46750	EV	24SE1937	C.03299)	(46744	EV	4OC1937	C.01463)
(46748	EV	13DC1937	0.02135)	(46767	EV	27DC1937	C.00774)	(46768	EV	16MR1938	0.C1470)
(46762	EV	18MR1938	0.04411)	(46772	EV	18AP1938	0.00710)	(46756	EV	27AP1938	C.0C168)
(1244	F 1	11JN1964	0.0C110)	(1246	F 3	11JN1964	C.00598)	(1247	B 3	14JL1964	C.02134)
(1248	B 3	24JL1964	0.01773)	(144C	B 6	11JL1964	C.00737)	(1441	B 6	24JL1964	C.CC220)
(1252	C* 1	16JL1964	0.0C279)	(1253	C* 2	16JL1964	C.00228)	(1255	D 5	15JL1964	C.00770)
(1256	E 2	14JL1964	0.00183)	(1258	F 1	6JL1964	C.00944)	(1260	F 3	6JL1964	C.01719)
(1262	B 3	17AU1964	C.C126C)	(1442	B 6	2AL1964	0.00341)	(1263	C 7	15AU1964	C.01201)
(1264	C* 1	10AU1964	0.00772)	(1265	C* 2	10AU1964	0.00894)	(1266	D 3	18AU1964	0.02105)
(1268	E 2	15AU1964	0.00821)	(1269	E 3	15AU1964	0.03563)	(1270	F 1	10AU1964	C.C3812)
(1444	B 6	19SE1964	0.00606)	(1272	C* 1	10SE1964	C.01642)	(1274	D 1	17SE1964	C.CC469)
(1275	D 2	17SE1964	0.00645)	(1277	D 4	18SE1964	C.03098)	(1278	D 6	18SE1964	C.0C384)
(1279	E 1	16SE1964	0.0C393)	(1281	E 3	16SE1964	C.01570)	(1283	E 5	16SE1964	C.C3C65)
(1284	E 6	17SE1964	0.00318)	(1285	F 1	15SE1964	0.01165)	(1287	F 3	15SE1964	C.01001)
(1445	B 6	14OC1964	0.02935)	(1289	C 7	14CC1964	C.00440)	(1293	D 2	15DC1964	C.0C472)
(1294	D 3	15DC1964	0.00330)	(1295	D 4	15DC1964	0.01784)	(1296	D 5	14DC1964	C.C1180)
(1297	D 6	14CC1964	0.00190)	(1298	E 1	12CC1964	C.00808)	(1299	E 2	12CC1964	C.CC314)
(1300	E 3	13DC1964	0.00716)	(1301	E 4	13CC1964	C.00883)	(1302	E 5	13DC1964	C.C3644)
(1303	E 6	13CC1964	0.00560)	(1305	F 2	11QC1964	0.00173)	(1306	F 3	11DC1964	C.0C554)
(1309	C* 1	10NO1964	0.00161)	(1311	D 1	8NO1964	0.00258)	(1320	E 4	7NO1964	C.00414)
(1322	E 6	7NO1964	0.00667)	(1323	F 1	6NO1964	C.00418)	(1324	F 2	6NC1964	C.CC699)
(1341	A 3	19AP1967	0.00434)	(1342	A 4	19AP1967	C.00180)	(1343	A 6	19AP1967	C.00069)
(1346	C 7	21AP1967	0.00134)	(1348	E 5	23AP1967	C.00137)	(1373	C 7	5MY1967	C.CC285)
(1431	A 3	12JN1967	0.00257)	(1435	C 7	13JN1967	C.00316)	(1449	C 3	16JL1967	C.C1146)
(1450	C 5	16JL1967	0.00381)	(1451	C 7	16JL1967	0.00197)	(1454	E 5	15JL1967	C.CC400)
(1504	A 3	28AU1967	C.01481)	(1505	A 4	28AU1967	C.03092)	(1509	C 5	2SE1967	C.C7C66)
(1510	C 7	29AU1967	0.01265)	(1511	E 2	1SE1967	0.04604)	(1512	E 3	1SE1967	C.C2356)
(1513	E 5	31AU1967	0.01520)	(1536	E 2	24SE1967	0.00545)	(1537	E 3	24SE1967	C.17683)
(1538	E 5	23SE1967	0.01657)	(1540	C 5	4OC1967	0.00993)	(1541	E 2	11OC1967	C.02129)
(1542	E 3	11DC1967	C.16273)	(1543	E 5	10CC1967	0.02155)	(			

Cyclotella cryptica Reimann, Lewin and Guillard

Cyclotella cryptica Reimann, Lewin and Guillard, Phycologia, 3:82, figs. 4-6. 1963.

Cells cylindrical with slightly concentrically undulate, nearly flat, valves. Cells always occur singly. Specimens from Lake Michigan 8-16μ in diameter. Ornamentation of the marginal zone consists of rather broad, chambered, striae, without substructure visible under the light microscope, separated by radiate costae. Striae and costae about 6-9 in 10μ at the margin of the valves. A rather inconspicuous spine occurs at the marginal end of each of the costae. The chambers of the costae grade into the surface of the central area so that the central area has no well defined border. The striae are also somewhat variable in length, especially in the larger individuals. The only visible ornamentation of the central area is one or more (usually less than 5) distinct puncta. These puncta are somewhat random in arrangement, but are never central and are most often confined to one side of the central area.

This species resembles *C. meneghiniana* and several of its described varieties. Evidence begins to accumulate that entities described as *C. meneghiniana* include a number of species of superficially similar morphology that are difficult to distinguish under the light microscope.

According to our evidence *C. cryptica* is quite rare in the Lake Michigan flora and the majority of our records come from harbors and from inshore areas subject to appreciable chloride contamination. Its distribution in this respect is quite similar to that of *C. meneghiniana* and some of its described varieties. With adequate optical equipment, determination of the two entities is not especially difficult but care must be taken and previous records, especially those derived from observations of living material, should be treated with caution.

115 CYCRYPTI TOT NO OF STATIONS 18

(1269	E 3	15AU1964	0.00274)	(1273	C' 2	10SE1964	0.00538)	(1274	D 1	17SE1964	C.CC469)
(1282	E 4	16SE1964	0.01108)	(1284	E 6	17SE1964	C.C0318)	(1348	E 5	23AP1967	C.00137)
(1451	C 7	16JL1967	C.CC394)	(1452	E 2	14JL1967	0.01490)	(1504	A 3	28AU1967	C.CC741)
(1533	A 4	19SE1967	0.03714)	(1534	A 6	19SE1967	0.C0310)	(1536	E 2	24SE1967	C.07362)
(1537	E 3	24SE1967	0.03450)	(1538	E 5	23SE1967	C.00552)	(1541	E 2	11CC1967	C.20755)
(1542	E 3	11CC1967	0.07628)	(1543	E 5	10CC1967	0.03591)	(1575	C528	6DC1967	C.00129)

Cyclotella kuetzingiana Thwaites

Cyclotella kützingiana Thwaites, Ann. Mag. Nat. Hist., ser. 2, 1:169. 1848.

Cells cylindrical with slightly excentrically undulate valves. Specimens from Lake Michigan 7-32μ in diameter, always occurring singly. Marginal zone somewhat variable in width, about one-quarter--one-half the radius of the valve. Ornamentation of the marginal zone composed of non-punctate striae, 12-14 in 10μ at the margin of the valve. The striae are of variable length, especially in the smaller individuals. In the larger individuals the inner border of the marginal zone is regular due to the

fact that the longer striae are all of approximately the same length. In the smaller individuals the border between the two zones appears less regular due to the fewer number of striae present. The ornamentation of the central area is highly variable in this taxon. A number of distinct puncta are present in all individuals. These may be of larger or smaller size and may be either randomly arranged or disposed radially. Other structures such as chambers or thickenings of the valve surface are lacking.

A number of varieties of this species have been described on the basis of the various patterns of ornamentation of the central area. Individual specimens can be found in the collections from Lake Michigan that are identical to nearly all of these. When populations are considered, these variations grade into one another so completely that no such distinctions can be made.

120 CYKUTZIN TCT AC CF STATIONS 135

(3540	CH	11MY1879	0.00932)	(3541	CH	1FE1881	0.06847)	(35C7	CH	19FE1881	C.01132)
(46905	CH	JA1947	0.00122)	(46957	CH	JL1947	C.00099)	(46922	CH	21AU1947	C.00048)
(46747	EV	1AU1937	C.00248)	(46744	EV	6DC1537	C.00488)	(1232	E 5	16MY1964	C.CC174)
(1440	B 6	11JL1964	C.CC365)	(1441	B 6	24JL1564	0.01762)	(1253	C* 2	16JL1964	C.CC228)
(1259	F 2	8JL1964	0.00310)	(1260	F 3	8JL1964	C.00191)	(1264	C* 1	10AU1564	C.CC193)
(1265	C* 2	1CAU1564	0.00894)	(1266	D 3	18AU1964	C.22099)	(1268	E 2	15AL1964	C.CC274)
(1270	F 1	1CAU1564	0.C0817)	(1272	C* 1	10SE1964	0.03694)	(1279	E 1	16SE1964	C.CC393)
(1280	E 2	16SE1964	0.01362)	(1281	E 3	16SE1564	C.C1570)	(1282	E 4	16SE1964	C.C4432)
(1283	E 5	16SE1964	0.03065)	(1284	E 6	17SE1564	0.04766)	(1285	F 1	15SE1964	C.01165)
(1292	D 1	15CC1964	0.00745)	(1293	D 2	15CC1964	0.00472)	(1294	D 3	15CC1964	C.CC656)
(1295	D 4	15CC1964	0.0356E)	(1296	D 5	14CC1564	0.00393)	(1298	E 1	12OC1964	0.00539)
(1299	E 2	12CC1964	0.00628)	(1300	E 3	13OC1964	C.02148)	(13C1	E 4	13OC1564	C.03091)
(1302	E 5	13OC1964	0.03235)	(1303	E 6	13CC1964	C.01679)	(1306	F 3	11OC1964	C.0C832)
(1307	B 6	NC1964	0.00361)	(13C9	C* 1	10NO1964	C.C0643)	(1317	E 1	6AC1964	C.CC191)
(1319	E 3	7NO1964	0.01833)	(1320	E 4	7NO1564	C.C0620)	(1321	E 5	7NO1964	C.CC638)
(1322	E 6	7NO1964	0.0C333)	(1339	C 5	28MR1567	C.00312)	(1340	C 7	28MR1967	C.CC073)
(1345	C 5	25AP1967	0.00585)	(1346	C 7	21AP1967	C.00401)	(1375	E 3	7MY1967	C.CC241)
(1376	E 5	6MY1967	0.00562)	(1410	A 6	24MY1567	0.00564)	(1449	C 3	16JL1567	C.C2293)
(1504	A 3	28AU1567	0.00247)	(1509	C 5	25E1967	C.01009)	(1510	C 7	29AU1967	C.CC632)
(1511	E 2	1SE1967	0.52719)	(1512	E 3	1SE1967	1.37427)	(1513	E 5	31AU1967	1.77359)
(1532	A 3	18SE1567	0.CC329)	(1533	A 4	19SE1967	0.00464)	(1534	A 6	15SE1567	C.0C931)
(1535	C 7	20SE1967	0.00322)	(1536	E 2	24SE1967	0.11452)	(1537	E 3	24SE1967	5.73622)
(1538	E 5	23SE1967	0.59659)	(1539	C 3	4CC1967	C.02013)	(1540	C 5	4OC1567	C.2C350)
(1541	E 2	11CC1967	0.4C977)	(1542	E 3	11CC1967	12.81530)	(15+3	E 5	10OC1967	1.1C616)
(1379	GS 3	9MY1967	0.00309)	(1380	GS 4	9MY1967	C.C0168)	(1381	GS 5	10MY1967	C.0C239)
(1382	GS 6	10MY1967	0.0C278)	(1383	GS 7	10MY1967	0.01871)	(1384	GS 8	10MY1967	C.01479)
(1387	GS11	12MY1967	0.10694)	(1388	GS12	12MY1967	0.56712)	(1389	GS13	12MY1967	0.1C056)
(1390	GS14	12MY1967	0.05285)	(1391	GS15	12MY1967	0.01915)	(1392	GS16	12MY1967	C.05548)
(1393	GS17	13MY1967	0.02192)	(1394	GS18	13MY1967	C.03096)	(1395	GS19	13MY1967	C.00822)
(1396	GS20	13MY1967	0.00222)	(1398	GS22	14MY1967	C.00607)	(1554	CS 1	3OC1967	C.31310)
(1555	GS 2	3OC1967	0.74153)	(1556	GS 3	3CC1967	C.49017)	(1557	GS 4	3OC1967	C.32885)
(1558	GS 5	4CC1967	0.61440)	(1559	GS 7	4OC1967	0.35672)	(1560	CS 8	4OC1567	1.2C909)
(1561	GS 9	4OC1967	1.17391)	(1562	GS1C	5CC1967	1.55425)	(1563	GS11	5OC1967	C.59627)
(1564	GS12	5CC1967	0.38515)	(1565	GS13	5OC1967	C.64395)	(1566	GS14	5CC1967	0.42928)
(1567	GS15	5OC1967	0.73987)	(1568	GS16	5CC1967	0.13564)	(1569	GS17	5OC1967	C.38054)
(1570	GS18	5CC1967	0.93217)	(1571	GS19	6DC1967	C.00351)	(1573	GS21	6DC1567	C.C1680)
(1574	GS22	6CC1967	0.11218)	(1575	GS28	6DC1967	C.01032)	(1547	PS 1	2DC1967	C.0C798)
(1520	MO 1	18SE1967	0.CC943)	(1522	BH 1	18SE1967	0.00182)	(1523	RA 1	19SE1967	C.CC923)
(1526	MO 1	20SE1967	0.06827)	(1527	TR 1	20SE1967	0.01258)	(1528	SB 1	20SE1967	1.57378)
(1529	KW 1	20SE1967	0.25183)	(1530	PR 1	24SE1967	C.02000)	(1521	GH 1	25SE1967	C.CC845)
(1548	CA 1	3OC1967	0.36891)	(1549	MQ 1	4OC1967	0.21927)	(1551	ES 1	5OC1967	3.56198)
(1552	SM 1	6DC1967	0.01981)	(1550	MR 1	5OC1967	C.16107)	(1553	SG 1	6DC1967	C.31580)
(1428	MU 2	25MY1967	0.00301)	(1427	LU 2	29MY1967	0.01211)	(1399	PW 2	5MY1967	C.C0680)
(1401	MO 2	6MY1967	0.00588)	(1402	TR 2	6MY1967	C.01083)	(1400	SB 2	6MY1967	C.CC596)
(1352	KW 2	21AP1967	0.CC859)	(1405	ES 2	12MY1967	C.07095)	(1407	SP 2	14MY1967	C.C2583)

Cyclotella meneghiniana Kützing.

Cyclotella meneghiniana Kützing, Bacill., p. 50, pl. 30, fig. 68. 1844.

Cells cylindrical with strongly excentrically undulate valves. Cells usually occur singly. Specimens from Lake Michigan 7-30μ in diameter. Ornamentation of the marginal zone consists of broad, chambered striae separated by radiate costae. Striae and costae 6-9 (usually 7 or 8) in 10μ at the margin of the valve. The striae are all of equal length and have no substructure visible under the light microscope. The width of the marginal

zone is about one-half the radius of the valve. The border between the two zones of the valve surface is very well marked and regular. The ornamentation of the central area consists of very fine and indistinct radiating striae occasionally with one or more larger isolated puncta. In some specimens the central area has no visible structure.

As noted in the discussion of *C. cryptica*, the reports of this species probably include several taxa of similar morphology. In Lake Michigan the nominate variety of *C. meneghiniana* is much rarer than *C. meneghiniana* var. *plana* described below. Our limited observations indicate that differences between these two taxa are great enough so that further study may prove them to be separate species. Final determination of the status of the numerous described taxa that are included in *C. meneghiniana* by most authorities awaits the patient research of the monographer.

123 CYMENEGH TCT NC OF STATIONS 52

(3540	CH	11MY1879	0.00466)	(3507	CH		19FE1881	C.01132)	146920	CH		20DE1946	C.CCC31)
146905	CH	JA1947	0.00368)	146516	CH		4MY1947	C.00034)	146922	CH		21AU1947	C.00145)
(1226	C 7	16MY1964	C.CC761)	(1252	C* 1		16JL1964	0.00279)	(1264	C* 1		10AU1964	C.CC565)
(1266	D 3	18AU1964	1.3505C)	(1271	C 7		22SE1964	C.00653)	(1272	C* 1		10SE1964	0.00157)
(1274	D 1	17SE1964	0.00469)	(1276	D 3		18SE1964	C.01118)	(1279	E 1		16SE1964	C.00393)
(1280	E 2	16SE1964	0.00681)	(1286	F 2		15SE1964	0.03284)	(1287	F 3		15SE1964	0.00500)
(1306	F 3	11CC1964	0.00554)	(1311	D 1		6NC1964	0.00774)	(1315	D 5		9NC1964	C.CC455)
(1316	D 6	9NC1964	0.00378)	(1320	E 4		7NC1964	C.00207)	(1323	F 1		6NC1964	0.00139)
(1324	F 2	6NC1964	0.00233)	(1341	A 3		19AP1967	0.00542)	(1342	A 4		19AP1967	C.00541)
(1343	A 6	19AP1967	0.00069)	(1348	E 5		23AP1967	C.00137)	(1370	A 6		3MY1967	C.00230)
(1409	A 4	23MY1967	0.00298)	(1411	C 3		31MY1967	C.00410)	(1416	E 5		28MY1967	C.01749)
(1431	A 3	12JN1967	0.00515)	(1432	A 4		13JN1967	0.00255)	(1434	C 5		17JN1967	C.00299)
(1448	A 6	10JL1967	0.00354)	(1450	C 5		16JL1967	C.00381)	(1451	C 7		16JL1967	C.00197)
(1508	C 3	25E1967	0.00400)	(1511	E 2		15E1967	0.00921)	(1532	A 3		18SE1967	C.01971)
(1533	A 4	19SE1967	0.00464)	(1534	A 6		19SE1967	C.00620)	(1535	C 7		20SE1967	C.00966)
(1537	E 3	24SE1967	0.01294)	(1538	E 5		23SE1967	0.03867)	(1539	C 3		4OC1967	C.00503)
(1540	C 5	4OC1967	0.00498)	(1541	E 2		11CC1967	0.07983)	(1542	E 3		11OC1967	C.02560)
(1543	E 5	10CC1967	0.05746)										

Cyclotella meneghiniana var. *plana* Fricke

Cyclotella meneghiniana var. *plana* Fricke, A. Schmidt's Atlas Diat., pl. 222, fig. 32. 1900.

Cells cylindrical with slightly concentrically undulate, nearly flat, valves. Cells occur singly. Specimens from Lake Michigan 8-38μ in diameter. Ornamentation of the marginal zone consists of rather broad chambered striae separated by rather wide and only slightly thickened radial ribs. Radial striae and costae 7-9 in 10μ, all of the same length, forming a smooth border with the central area. The striae and costae occupy about one-half the radius of the valve. At the distal end of each of the costae there is a more or less conspicuous spine. The ornamentation of the central area consists of very fine and indistinct striae that radiate about a central point. In addition one or more large distinct, isolated puncta usually occur on one side of the central area about equidistant between the center of the valve and the outer margin of the central area.

As noted above, this taxon could be afforded specific status on the basis of our observations from Lake Michigan because of its constant unique morphology and distribution pattern. We, however, choose to retain the established usage until more evidence is available from other habitats.

124 CYMENEFP TCT NC OF STATIONS 163

(3540	CH	11MY1879	0.00466)	146524	CH		10MY1946	0.00071)	146922	CH		21AU1947	C.00145)
146760	EV	22SE1937	0.00492)	146744	EV		6OC1937	C.00488)	146767	EV		27OC1937	C.00387)

(1230	E 2	16MY1964	C.CC296)	(1232	E 5	16MY1964	C.00348)	(1236	C' 1	6JN1964	C.1C327)
(1237	C' 2	8JN1964	0.01289)	(1239	D 4	11JN1964	0.00116)	(1240	D 6	10JN1964	0.0C307)
(1243	E 6	13JN1964	0.0C205)	(1248	B 3	24JL1964	C.CC394)	(1253	C' 2	16JL1964	C.CC228)
(1254	D 2	15JL1964	0.0C192)	(1256	E 2	14JL1964	0.00366)	(1257	E 3	14JL1964	C.CC239)
(1259	F 2	6JL1964	0.CC310)	(1264	C' 1	10AU1964	0.01545)	(1265	C' 2	10AU1964	C.C1118)
(1266	D 3	18AU1964	0.00351)	(1269	E 3	15AU1964	0.00822)	(1272	C' 1	10SE1964	C.44330)
(1273	C' 2	1CSE1964	0.01613)	(1274	D 1	17SE1964	0.00938)	(1275	D 2	17SE1964	C.C1935)
(1278	D 6	18SE1964	0.00769)	(1281	E 3	16SE1964	C.00785)	(1282	E 4	16SE1964	C.C1108)
(1283	E 5	16SE1964	0.00613)	(1285	F 1	15SE1964	0.02912)	(1286	F 2	15SE1964	C.C2189)
(1287	F 3	15SE1964	0.01001)	(1291	C' 2	16DC1964	0.00489)	(1294	D 3	15DC1964	C.CC330)
(1298	E 1	12DC1964	0.00808)	(1299	E 2	12DC1964	0.00314)	(1300	E 3	13DC1964	0.00358)
(1301	E 4	13CC1964	0.00442)	(1303	E 6	13DC1964	0.00560)	(1304	F 1	11DC1964	C.0C494)
(1305	F 2	11CC1964	0.00863)	(1311	D 1	8ND1964	0.00516)	(1313	D 3	9ND1964	C.00193)
(1316	D 6	9ND1964	C.00378)	(1317	E 1	6ND1964	C.00191)	(1318	E 2	7NC1964	C.00380)
(1321	E 5	7ND1964	0.00319)	(1341	A 3	19AP1967	C.03037)	(1342	A 4	19AP1967	C.0C902)
(1343	A 6	19AP1967	0.00208)	(1346	C 7	21AP1967	C.C0401)	(1369	A 4	4MY1967	C.C1118)
(1370	A 6	3MY1967	0.00230)	(1371	C 3	4MY1967	0.00231)	(1374	E 2	7MY1967	C.CC598)
(1376	E 5	6MY1967	0.00281)	(1409	A 4	23MY1967	0.00595)	(1411	C 3	31MY1967	C.CC410)
(1416	E 5	28MY1967	0.03936)	(1432	A 4	13JN1967	0.00511)	(1446	A 3	11JL1967	C.0C489)
(1447	A 4	11JL1967	0.00702)	(1448	A 6	10JL1967	C.01061)	(1449	C 3	16JL1967	C.00382)
(1451	C 7	16JL1967	C.0C394)	(1452	E 2	14JL1967	0.01703)	(1453	E 3	15JL1967	C.C1264)
(1454	E 5	15JL1967	C.C0600)	(1504	A 3	28AU1967	C.19010)	(1505	A 4	2EAU1967	C.0C515)
(1508	C 3	2SE1967	C.C0400)	(1511	E 2	1SE1967	0.00307)	(1512	E 3	1SE1967	C.C0785)
(1513	E 5	31AU1967	0.00507)	1532	A 3	18SE1967	0.C8870)	(1533	A 4	19SE1967	C.22282)
(1534	A 6	19SE1967	0.15512	1535	C 7	20SE1967	0.05472)	(1536	E 2	24SE1967	C.C3545)
(1537	E 3	24SE1967	0.05607	(1538	E 5	23SE1967	C.07181)	(1539	C 3	4DC1967	C.01006)
(1540	C 5	4DC1967	0.00496)	(1541	E 2	11DC1967	C.44170)	(1542	E 3	11DC1967	C.1C679)
(1543	E 5	10DC1967	0.05746)	(1377	GS 1	9MY1967	0.00792)	(1381	CS 5	10MY1967	C.0C477)
(1382	GS 6	10MY1967	0.00278)	(1388	GS12	12MY1967	C.02413)	(1389	CS13	12MY1967	C.0C516)
(1390	GS14	12MY1967	0.01174)	(1391	GS15	12MY1967	0.00479)	(1392	CS16	12MY1967	C.0C308)
(1394	GS18	13MY1967	0.00344)	(1356	GS2C	13MY1967	C.00518)	(1397	CS21	13MY1967	C.CC196)
(1398	GS22	14MY1967	0.00304)	(1554	GS 1	3DC1967	0.26349)	(1555	GS 2	3CC1967	C.59322)
(1556	GS 3	3CC1967	0.86041)	(1557	GS 4	3CC1967	C.45964)	(1558	CS 5	4CC1967	C.42999)
(1559	GS 7	4CC1967	0.83584)	(1560	GS 8	4DC1967	C.53370)	(1561	CS 9	4DC1967	C.19957)
(1562	GS1C	5GC1967	0.06661)	(1563	GS11	5CC1967	C.11692)	(1564	GS12	5DC1967	0.05382)
(1565	GS13	5GC1967	0.28395)	(1566	GS14	5DC1967	C.15410)	(1567	CS15	5CC1967	C.22228)
(1568	GS16	5CC1967	C.01876)	(1569	GS17	5CC1967	C.16054)	(1571	CS19	6CC1967	C.05074)
(1572	GS20	6CC1967	0.01352)	(1573	GS21	6DC1967	C.05040)	(1574	CS22	6CC1967	C.07191)
(1575	GS28	6DC1967	C.11354)	(1544	MU 1	2CC1967	C.28117)	(1547	PS 1	2DC1967	C.C8782)
(1524	MI 1	20SE1967	0.13135)	(1546	LU 1	20C1967	C.09503)	(1520	HO 1	18SE1967	C.67424)
(1521	SH 1	18SE1967	C.05193)	(1522	BH 1	18SE1967	1.22536)	(1523	MA 1	19SE1967	C.3E745)
(1525	PM 1	20SE1967	0.01393)	(1526	MO 1	20SE1967	C.04551)	(1527	TR 1	20SE1967	C.C3774)
(1529	KM 1	2CSE1967	0.05996)	(1530	FR 1	24SE1967	C.02000)	(1531	CH 1	25SE1967	23.53339)
(1545	WL 1	2CC1967	0.07433)	(1548	CA 1	3CC1967	0.03816)	(1549	PQ 1	4CC1967	1.15116)
(1551	ES 1	5CC1967	0.14378)	(1550	MR 1	5CC1967	C.56994)	(1553	SG 1	6CC1967	C.0C734)
(1428	MU 2	29MY1967	0.22297)	(1426	MS 2	29MY1967	0.13648)	(1351	MI 2	21AP1967	C.CC621)
(1427	LU 2	29MY1967	0.07264)	(1417	MO 2	22MY1967	0.59818)	(1418	SH 2	22MY1967	C.C1555)
(1350	BH 2	19AP1967	1.05725)	(1425	MA 2	25MY1967	C.03536)	(1359	PM 2	5MY1967	C.02040)
(1401	MO 2	6MY1967	0.69379)	(1402	TR 2	6MY1967	0.23284)	(1400	SB 2	6MY1967	C.8C415)
(1352	KW 2	21AP1967	0.00859)	(1353	FR 2	23AP1967	0.05274)	(1354	CH 2	25AP1967	C.C7422)
(1429	WL 2	29MY1967	0.55208)	(1407	SM 2	14MY1967	0.00597)	(1406	CB 2	13MY1967	C.01617)
(1420	IM 2	23MY1967	0.03021)	(1421	CH 2	23MY1967	0.03470)	(1422	CA 2	23MY1967	C.C3576)
(1423	WA 2	25MY1967	0.0C856)								

Cyclotella michiganiana Skv.

Cyclotella michiganiana Skvortzow, Amer. Midland Nat., 18:658, pl. 1, figs. 3, 10, 18. 1937.

Cells cylindrical with strongly excentrically undulate valves. Cells always occur singly. Specimens from Lake Michigan 5-22μ in diameter. Width of marginal zone variable, usually about one-half the radius of the valve. Ornamentation of the marginal zone composed of radial striae of slightly irregular length and without visible substructure. Radial striae 14-18 in 10μ at the margin of the valve. Central area of the valves strongly undulate, usually with a number of large, randomly arranged, puncta on the raised portion. The sunken portion of the central area may be without visible ornamentation or may have a few puncta similar to those on the raised portion.

This species is abundant in some collections from Lake Michigan. It apparently is cyclical in occurrence, being common or dominant in the plankton in some years and very rare or lacking in collections from the same area and season in other years. The taxonomic position of this entity is difficult to determine with certainty. Skvortzow (l.c.) has pointed out its affinities to *C. striata* (Kütz.) Grun. and *C. caspia* Grun. Both of these species find their primary habitat in brackish water and, although they resemble this species in general morphology, sufficient differences exist to separate them with little doubt.

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(60973	CH	1876	1.65328)	(354C	CH	11MY1879	0.02330)	(3541	CH	1FE1881	C.04891)
(3507	CH	19FE1881	0.01132)	(46510	CH	OC1945	0.07100)	(46921	CH	23NO1945	C.06596)
(46908	CH	CE1945	0.06042)	(46517	CH	12JA1946	0.23427)	(46915	CH	2CFE1946	C.28453)
(46914	CH	19AP1946	0.01602)	(46524	CH	10MY1946	0.01834)	(46923	CH	22NO1946	C.39122)
(4692C	CH	20DE1946	0.13033)	(465C5	CH	JA1947	C.11398)	(469C9	CH	MR1947	C.2C946)
(46912	CH	AP1947	0.01150)	(46516	CH	4MY1947	0.00136)	(469C6	CH	MY1947	C.00465)
(46919	CH	5JN1947	0.00607)	(465C7	CH	JL1947	0.00444)	(46913	CH	6AU1947	C.C1046)
(46922	CH	21AU1947	2.20513)	(46758	EV	5JN1937	0.00713)	(46764	EV	17JL1937	C.24980)
(46757	EV	25JL1937	0.22146)	(46763	EV	23AU1937	C.40584)	(46765	EV	30AU1937	C.2C636)
(46769	EV	7SE1937	0.06513)	(46752	EV	15SE1937	0.10884)	(46760	EV	22SE1937	C.13787)
(46750	EV	24SE1937	C.44304)	(46744	EV	6CC1937	0.10730)	(46748	EV	13OC1937	C.C4270)
(46767	EV	27CC1937	0.06963)	(46749	EV	12MR1938	0.01214)	(46768	EV	16MR1938	C.07250)
(46762	EV	18MR1938	1.01456)	(46759	EV	19MY1938	C.00338)	(46761	EV	27MY1938	C.0C545)
(46766	EV	14DE1938	0.06337)	(1229	D 5	14MY1964	0.00846)	(1230	E 2	16MY1964	C.C1482)
(1231	E 3	16MY1964	0.01223)	(1232	E 5	16MY1964	C.C8000)	(1233	B 3	5JN2964	C.C0476)
(1234	B 3	18JN1964	0.C0843)	(1235	C 7	16JN1964	C.C0282)	(1439	B 6	5JN1964	C.00799)
(1236	C* 1	8JN1964	0.00175)	(1237	C* 2	8JN1964	0.00258)	(1238	D 3	11JN1964	C.CC4C0)
(1239	D 4	11JN1964	0.00116)	(1240	D 6	10JN1964	0.00153)	(1241	E 2	13JN1964	0.C0148)
(1244	F 1	11JN1964	0.0C548)	(1245	F 2	11JN1964	C.10C27)	(1246	F 3	11JN1964	C.C1793)
(1248	B 3	24JL1964	0.C1182)	(1441	B 6	24JL1964	0.00661)	(1250	C 6	10JL1964	C.CC822)
(1251	C 7	16JL1964	0.0C290)	(1252	C* 1	16JL1964	C.C0837)	(1254	D 2	15JL1964	C.C1532)
(1255	D 5	15JL1964	0.00513)	(1256	E 2	14JL1964	0.00550)	(1257	E 3	14JL1964	C.CC479)
(1258	F 1	6JL1964	0.03068)	(1259	F 2	6JL1964	C.08366)	(1260	F 3	6JL1964	C.C2865)
(1261	B 3	2AU1964	0.12364)	(1262	B 3	17AU1964	C.58799)	(1442	B 6	2AU1964	C.C5118)
(1443	B 6	16AU1964	2.45C81)	(1263	C 7	15AU1964	1.68134)	(1265	C* 2	10AU1964	C.C7194)
(1267	D 6	18AU1964	0.03243)	(1268	E 2	15AU1964	C.42127)	(1269	E 3	15AU1964	C.55927)
(1270	F 1	10AU1964	3.04969)	(1444	B 6	19SE1964	1.37925)	(1271	C 7	22SE1964	C.13C57)
(1272	C* 1	10SE1964	0.57464)	(1273	C* 2	10SE1964	1.37642)	(1274	D 1	17SE1964	C.12668)
(1275	D 2	17SE1964	0.49674)	(1276	D 3	18SE1964	C.30174)	(1277	D 4	18SE1964	C.32842)
(1278	D 6	18SE1964	0.04996)	(1279	E 1	16SE1964	C.11387)	(1280	E 2	16SE1964	C.1C212)
(1281	E 3	16SE1964	C.19621)	(1282	E 4	16SE1964	0.23269)	(1283	E 5	16SE1964	C.5C877)
(1284	E 6	17SE1964	0.66724)	(1285	F 1	15SE1964	5.29963)	(1286	F 2	15SE1964	2.8C210)
(1287	F 3	15SE1964	2.45196)	(1288	B 3	15CC1964	C.03701)	(1289	C 7	14OC1964	C.C7475)
(1290	C* 1	16CC1964	0.02653)	(1291	C* 2	16CC1964	C.03180)	(1292	D 1	15CC1964	C.18634)
(1293	D 2	15OC1964	0.11791)	(1294	D 3	15CC1964	C.35600)	(1295	D 4	15OC1964	1.14758)
(1296	D 5	14CC1964	0.64917)	(1297	C 6	14CC1964	C.00952)	(1298	E 1	12OC1964	C.C277C)
(1299	E 2	12OC1964	0.21992)	(130C	E 3	13OC1964	1.25291)	(13C1	E 4	13OC1964	1.13044)
(13C2	E 5	13OC1964	1.23087)	(1303	E 6	13CC1964	C.17911)	(13C4	F 1	11CC1964	C.6C506)
(1305	F 2	11OC1964	0.60380)	(13C6	F 3	11OC1964	1.06713)	(1307	B 6	NO1964	C.14C71)
(1308	C 7	6NO1964	0.02129)	(1309	C* 1	10NO1964	C.C3216)	(1310	C* 2	10NC1964	C.14286)
(1311	D 1	8NO1964	0.03612)	(1312	C 2	8NO1964	C.05277)	(1313	D 3	9NO1964	C.C5459)
(1314	D 4	9NO1964	C.11770)	(1315	D 5	9NC1964	0.06824)	(1316	C 6	9NC1964	C.CC756)
(1317	E 1	6NO1964	0.02872)	(1318	E 2	7NO1964	0.15791)	(1319	E 3	7NO1964	0.46605)
(1320	E 4	7NC1964	0.31851)	(1321	E 5	7NO1964	C.44691)	(1322	E 6	7NO1964	C.12664)
(1323	F 1	6NO1964	0.58537)	(1324	F 2	6NO1964	C.25155)	(1325	F 3	6NO1964	0.12350)
(1336	C 3	27JA1967	0.00963)	(1337	C 3	2MR1967	C.08084)	(1338	C 3	28MR1967	C.C5785)
(1339	C 5	28MR1967	0.C4053)	(134C	C 7	28MR1967	C.00364)	(1341	A 3	19AP1967	C.CC976)
(1342	A 4	19AP1967	C.08662)	(1343	A 6	19AP1967	C.C0C69)	(1344	C 3	25AP1967	C.0C662)
(1345	C 5	25AP1967	0.18323)	(1346	C 7	21AP1967	C.06142)	(1347	E 2	23AP1967	C.C1301)
(1348	E 5	23AP1967	0.CC822)	(1368	A 3	4MY1967	C.00943)	(1372	C 5	5MY1967	C.C2128)
(1373	C 7	5MY1967	0.02282)	(1374	E 2	7MY1967	0.00299)	(1375	E 3	7MY1967	C.C1203)
(1376	E 5	6MY1967	0.00562)	(14C8	A 3	23MY1967	0.00447)	(1410	A 6	24MY1967	C.00564)
(1411	C 3	31MY1967	0.02462)	(1413	C 7	25MY1967	C.00316)	(1414	E 2	28MY1967	C.CC336)
(1416	E 5	28MY1967	0.00437)	(1431	A 3	12JN1967	0.00257)	(1433	C 3	17JN1967	C.01292)
(1434	C 5	17JN1967	C.CC598)	(1435	C 7	13JN1967	0.00316)	(1436	E 2	15JN1967	C.CC724)
(1446	A 3	11JL1967	0.00489)	(1449	C 3	16JL1967	0.17196)	(1450	C 5	16JL1967	C.01333)
(1451	C 7	16JL1967	0.0C394)	(1452	E 2	14JL1967	C.01277)	(1453	E 3	15JL1967	[illegible])
(1454	E 5	15JL1967	0.C1000)	(1504	A 3	28AU1967	0.31354)	(1505	A 4	28AU1967	C.35678)
(1506	A 6	29AU1967	0.01046)	(1508	C 3	2SE1967	0.08792)	(1509	C 5	2SE1967	1.32734)
(1510	C 7	29AU1967	0.55327)	(1511	E 2	1SE1967	1.18182)	(1512	E 3	1SE1967	1.0C518)
(1513	E 5	31AU1967	1.77359)	(1532	A 3	18SE1967	C.04599)	(1533	A 4	19SE1967	C.03249)
(1534	A 6	19SE1967	0.01551)	(1535	C 7	2CSE1967	0.05472)	(1536	E 2	24SE1967	C.14452)
(1537	E 3	24SE1967	1.1C411)	(1538	E 5	23SE1967	0.32591)	(1539	C 3	4OC1967	C.317CC)
(1540	C 5	4CC1967	0.59066)	(1541	E 2	11OC1967	0.74504)	(1542	E 3	11CC1967	6.4C765)
(1543	E 5	10CC1967	1.5C84C)	(1379	GS 3	9MY1967	C.00928)	(1380	GS 4	9MY1967	C.C1513)
(1381	GS 5	10MY1967	C.0C954)	(1382	GS 6	10MY1967	0.03608)	(1383	GS 7	10MY1967	C.01C65)
(1384	GS 8	10MY1967	0.C1109)	(1385	GS 9	1CMY1967	C.00942)	(1386	[illegible]	12MY1967	C.CC575)
(1387	GS11	12MY1967	C.C1980)	(1388	GS12	12MY1967	0.04827)	(1389	GS13	12MY1967	C.C1C31)
(1390	GS14	12MY1967	0.01174)	(1391	GS15	12MY1967	C.00479)	(1392	GS16	12MY1967	C.02157)
(1393	GS17	13MY1967	0.00548)	(1394	GS18	13MY1967	C.01204)	(1395	GS19	13MY1967	C.CC470)
(1396	GS20	13MY1967	0.0C148)	(1554	GS 1	3CC1967	C.06404)	(1555	GS 2	3OC1967	C.92867)
(1556	GS 3	3CC1967	2.55514)	(1557	GS 4	3OC1967	3.13901)	(1558	GS 5	4CC1967	3.32963)
(1559	GS 7	4OC1967	1.34644)	(1560	GS 8	4CC1967	1.65305)	(1561	GS 9	4OC1967	1.17391)
(1562	GS1C	5CC1967	0.3C098)	(1566	GS14	5CC1967	C.02752)	(1567	GS15	5CC1967	C.12972)
(1568	GS16	5CC1967	0.01154)	(1569	GS17	5OC1967	C.23040)	(1570	GS18	5OC1967	C.14875)
(1571	GS19	6CC1967	C.0C293)	(1573	GS21	6CC1967	C.0C448)	(1574	GS22	6CC1967	C.02989)
(1575	GS28	6CC1967	0.00258)	(1544	MU 1	2OC1967	C.00238)	(1547	MS 1	2OC1967	C.03194)
(1524	MI 1	2CSE1967	0.02189)	(1546	LU 1	2CC1967	C.03001)	(1520	MC 1	18SE1967	C.02357)
(1521	SM 1	18SE1967	0.02885)	(1522	BM 1	18SE1967	C.00365)	(1523	RA 1	19SE1967	C.04613)
(1526	MO 1	20SE1967	0.C3982)	(1527	TR 1	2CSE1967	C.C3145)	(1528	SB 1	20SE1967	C.C2888)
(1529	KW 1	2CSE1967	0.09593)	(1530	FR 1	24SE1967	C.08C01)	(1531	CM 1	25SE1967	C.0C845)
(1545	WL 1	2OC1967	C.4257C)	(1548	CA 1	3CC1967	4.47780)	(1549	MC 1	4OC1967	1.72674)
(1551	ES 1	5CC1967	1.66147)	(1552	SM 1	6CC1967	C.C2641)	(1550	MR 1	5CC1967	C.21063)
(1553	SG 1	6CC1967	C.03672)	(1351	MI 2	21AP1967	0.00310)	(1417	MO 2	22MY1967	C.C1122)
(1350	BM 2	19AP1967	0.00220)	(1399	PW 2	5MY1967	C.C0680)	(1401	MD 2	6MY1967	C.CC588)
(1400	SB 2	6MY1967	0.00596)	(1352	KW 2	21AP1967	0.00859)	(1429	WL 2	29MY1967	C.01062)
(1403	CA 2	10MY1967	0.32693)	(1404	MC 2	10MY1967	C.05081)	(1405	ES 2	12MY1967	C.C516C)
(1407	SM 2	14MY1967	0.01791)	(1349	CI 2	19AP1967	C.01437)	(1420	IM 2	23MY1967	C.01511)
(1421	CM 2	23MY1967	0.05205)	(1422	GA 2	23MY1967	C.00511)	(1423	WA 2	25MY1967	C.CC856)

Cyclotella ocellata Pant.

Cyclotella ocellata Pantocsek, Res. Wiss. Erforsh. Balatonsees, Sec. I., p. 104, fig. 318. 1902.

Cells cylindrical, surface of the valves flat or only slightly concave. Cells always occur singly. Specimens from Lake Michigan 6-22μ in diameter. Marginal zone narrow, less than one-half the radius of the valve. Radial striae in the marginal zone irregular in length, without visible substructure, about 14-16 in 10μ at the margin of the valve. Ornamentation of the marginal zone other than the striae is lacking in this species. Two types of structure are present in the central area. Several distinct puncta, either randomly or radially arranged, are present in most specimens. The most distinctive characteristic of this species is the presence of several large (about 1μ diameter) circular silicious structures. In valve view these appear as thickenings on the valve surface. In girdle view they appear as fungiform papillae. These structures, like the puncta, may be randomly arranged or, more usually, radially disposed.

Although previous reports indicate that this species reaches its greatest abundance in littoral habitats, it is apparently also adapted to euplanktonic growth as it is quite common in offshore collections from the Great Lakes. It reaches its greatest abundance in Lake Huron but is also found in abundance in Lake Superior and in some collections from northern Lake Michigan. The morphology of this taxon is very similar to the *C. kuetzingiana* complex, but the presence of the fungiform papillae makes their separation relatively easy.

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146973	CH		1876	0.4C151	3540	CH		11MY1875	0.23296	3541	CH		1FE1881	0.29346
3507	CH		19FE1881	0.16980	146910	CH		0C1945	C.00109	146921	CH		23N01945	C.00582
146917	CH		12JA1946	0.01275	146915	CH		20FE1946	0.02845	146914	CH		19AP1946	C.C1922
146924	CH		10MY1946	0.01411	146923	CH		22N01946	0.00437	146920	CH		20DE1946	C.00031
146905	CH		JA1947	0.01961	146909	CH		MR1947	0.00455	146916	CH		4MY1947	C.0C780
146906	CH		MY1947	0.21570	146919	CH		5JN1947	0.05463	146907	CH		JL1947	C.C7052
146922	CH		21AU1947	C.56702	146758	EV		5JN1937	C.01426	146771	EV		11JN1937	C.CC475
146743	EV		20JN1937	0.01713	146745	EV		3JL1937	C.02090	146764	EV		17JL1937	C.16116
146757	EV		25JL1937	0.18295	146747	EV		1AU1937	C.02723	146763	EV		23AU1937	C.1C146
146765	EV		30AU1937	0.02231	146752	EV		15SE1937	0.02177	146750	EV		24SE1937	0.00471
146744	EV		8OC1937	0.01462	146748	EV		13OC1937	C.02135	146749	EV		12MR1938	C.C8069
146762	EV		18MR1938	0.04411	146751	EV		30MR1938	0.03350	146756	EV		27AP1938	C.CC168
146759	EV		19MY1938	0.01688	146761	EV		27MY1938	C.C1C90	1226	C 7		16MY1964	0.00381
1227	C* 2		13MY1964	0.CC219	1228	D 2		14MY1964	0.00584	1229	D 5		14MY1964	C.C2749
1230	E 2		16MY1964	0.00889	1231	E 3		16MY1964	C.01223	1232	E 5		16MY1964	C.C1044
1234	B 3		18JN1964	0.00562	1439	B 6		5JN1964	C.00400	1237	C* 2		8JN1964	C.00516
1238	D 3		11JN1964	C.C1600	1239	D 4		11JN1964	C.00116	1240	D 6		10JN1964	C.0C767
1241	E 2		13JN1964	0.00739	1242	E 3		13JN1964	C.00599	1243	E 6		13JN1964	C.C1879
1244	F 1		11JN1964	0.0C877	1245	F 2		11JN1964	C.01037	1246	F 3		11JN1964	C.C239C
1247	B 3		14JL1964	0.01707	1248	B 3		24JL1964	C.00591	1440	B 6		11JL1964	C.05159
1441	B 6		24JL1964	0.09251	1249	C 3		8JL1964	C.00272	1250	C 6		10JL1964	C.08222
1251	C 7		16JL1964	0.01159	1252	C* 1		16JL1964	0.00279	1253	C* 2		16JL1964	C.C3423
1254	D 2		15JL1964	0.12067	1255	D 5		15JL1964	C.39526	1256	E 2		14JL1964	C.C8244
1257	E 3		14JL1964	0.07656	1258	F 1		6JL1964	0.08259	1259	F 2		6JL1964	C.13014
1260	F 3		6JL1964	0.07831	1261	B 3		2AU1964	0.00589	1442	B 6		2AU1964	C.13306
1443	B 6		16AU1964	0.01186	1263	C 7		15AU1964	C.00400	1264	C* 1		10AU1964	C.C1545
1265	C* 2		10AU1964	0.09389	1266	D 3		18AU1964	0.49109	1267	D 6		18AU1964	C.C1C81
1268	E 2		15AU1964	C.38297	1269	E 3		15AU1964	C.25763	1270	F 1		10AU1964	C.47651
1444	B 6		19SE1964	0.00606	1271	C 7		22SE1964	C.01306	1273	C* 2		10SE1964	C.01075
1275	D 2		17SE1964	C.01290	1276	D 3		18SE1964	0.01118	1278	D 6		18SE1964	C.CC384
1279	E 1		16SE1964	0.00393	1280	E 2		16SE1964	0.01362	1281	E 3		16SE1964	0.02747
1282	E 4		16SE1964	C.01108	1283	E 5		16SE1964	C.08582	1284	E 6		17SE1964	C.04766
1285	F 1		15SE1964	0.11648	1287	F 3		15SE1964	0.06505	1445	B 6		14OC1964	0.00952
1289	C 7		14OC1964	0.00440	1290	C* 1		16OC1964	C.00379	1293	D 2		15OC1964	C.03302
1294	D 3		15OC1964	0.04615	1295	D 4		15OC1964	C.07730	1296	D 5		14OC1964	C.C2361
1297	D 6		14OC1964	0.0C571	1298	E 1		12CC1964	C.00269	1299	E 2		12CC1964	C.CC942
1300	E 3		13CC1964	0.02148	1301	E 4		13OC1964	0.06624	1302	E 5		13OC1964	C.17005
1303	E 6		13CC1964	0.04478	1304	F 1		11CC1964	C.02223	1305	F 2		11OC1964	C.0C518
1306	F 3		11OC1964	0.0C632	1307	B 6		N01964	C.00722	1309	C* 1		10N01964	C.CC322
1311	D 1		8N01964	0.00516	1312	D 2		8NC1964	C.00621	1313	D 3		9N01964	C.01737
1314	D 4		9NC1964	0.00287	1315	D 5		9N01964	C.00910	1316	D 6		9NC1964	C.CC756

(1317	E 1	6NO1964	C.CC766)	(1318	E 4	7AL1964	C.02894)	(1319	E 3	7NO1964	C.22255)
(1320	E 4	7NO1964	C.03723)	(1321	E 5	7NO1964	C.02235)	(1322	E 6	7NO1964	C.CC667)
(1323	F 1	6NO1964	C.CC697)	(1324	F 2	6AC1964	C.00699)	(1336	C 3	27JA1967	C.CC193)
(1337	C 3	2MR1967	C.01029)	(1338	C 3	28MR1967	C.C4496)	(1339	C 5	28MR1967	C.C2806)
(1340	C 7	28MR1967	C.02327)	(1341	A 3	19AP1967	C.02170)	(1342	A 4	19AP1967	C.05233)
(1343	A 6	19AP1967	C.CCC65)	(1344	C 3	25AP1967	C.00496)	(1345	C 5	25AP1967	C.07407)
(1346	C 7	21AP1967	C.02804)	(1347	E 2	23AP1967	C.02439)	(1348	E 5	23AP1967	C.CC548)
(1368	A 3	4MY1967	C.CC943)	(1369	A 4	4MY1967	C.01118)	(1370	A 6	3MY1967	C.CC921)
(1371	C 3	4MY1967	C.00693)	(1372	C 5	5MY1967	C.C1064)	(1373	C 7	5MY1967	C.18255)
(1374	E 2	7MY1967	C.01793)	(1375	E 3	7MY1967	C.C8181)	(1376	E 5	6MY1967	C.C4779)
(1409	A 4	23MY1967	C.00595)	(1410	A 6	24MY1967	C.01128)	(1411	C 3	31MY1967	C.C1231)
(1412	C 5	31MY1967	C.00421)	(1413	C 7	25MY1967	C.00548)	(1414	E 2	28MY1967	C.CC672)
(1415	E 3	28MY1967	C.00225)	(1416	E 5	28MY1967	C.00656)	(1431	A 2	12JN1967	C.C1802)
(1432	A 4	13JN1967	C.01788)	(1433	C 3	17JN1967	C.08397)	(1434	C 5	17JN1967	C.C2393)
(1435	C 7	13JN1967	C.02210)	(1436	E 2	15JN1967	C.03257)	(1437	E 3	15JN1967	C.00269)
(1438	E 5	14JN1967	C.01089)	(1446	A 3	11JL1967	C.10273)	(1447	A 4	11JL1967	C.C1871)
(1448	A 6	10JL1967	C.00354)	(1449	C 3	10JL1967	C.16050)	(1450	C 5	10JL1967	C.19804)
(1451	C 7	10JL1967	C.00394)	(1452	E 2	14JL1967	C.03193)	(1453	E 3	15JL1967	C.13902)
(1454	E 5	15JL1967	C.09202)	(1504	A 3	28AU1967	C.00741)	(1505	A 4	28AU1967	C.C1031)
(1508	C 3	25E1967	C.00400)	(1509	C 5	25E1967	C.70657)	(1510	C 7	29AU1967	C.02845)
(1511	E 2	15E1967	2.57851)	(1512	E 3	15E1967	C.27485)	(1513	E 5	31AU1967	C.6C302)
(1532	A 3	18SE1967	C.00986)	(1533	A 4	19SE1967	C.03714)	(1536	E 2	24SE1967	C.22632)
(1537	E 3	24SE1967	1.50953)	(1538	E 5	23SE1967	C.09391)	(1540	C 5	4OC1967	C.26307)
(1541	E 2	11OC1967	0.28205)	(1542	E 3	11OC1967	3.38181)	(1543	E 5	10OC1967	C.10056)
(1378	GS 2	9MY1967	C.00421)	(1379	GS 3	9MY1967	C.05571)	(1380	GS 4	9MY1967	C.01513)
(1381	GS 5	10MY1967	C.01431)	(1382	GS 6	10MY1967	C.09714)	(1383	GS 7	10MY1967	C.04544)
(1384	GS 8	10MY1967	C.C8319)	(1385	GS 9	10MY1967	C.00471)	(1386	GS1C	12MY1967	C.11204)
(1387	GS11	12MY1967	C.07129)	(1388	GS12	12MY1967	C.04223)	(1389	GS13	12MY1967	C.01547)
(1390	GS14	12MY1967	C.04110)	(1391	GS15	12MY1967	C.06225)	(1392	GS16	12MY1967	C.04623)
(1393	GS17	13MY1967	C.12601)	(1394	GS18	13MY1967	C.03C96)	(1395	GS19	13MY1967	C.0C822)
(1398	GS22	14MY1967	C.02125)	(1554	GS 1	30C1967	C.08895)	(1555	GS 2	3OC1967	C.44845)
(1556	GS 3	3CC1967	C.23987)	(1557	GS 4	3CC1967	C.36248)	(1558	GS 5	4OC1967	C.3C918)
(1559	GS 7	4OC1967	C.32874)	(156C	GS 8	4OC1967	C.41562)	(1561	GS 9	4OC1967	C.1C565)
(1562	GS10	5CC1967	C.15789)	(1563	GS11	5OC1967	C.01169)	(1564	GS12	5OC1967	C.80165)
(1565	GS13	5OC1967	C.00507)	(1566	GS14	5OC1967	C.00183)	(1567	GS15	5OC1967	C.C3969)
(1568	GS16	5OC1967	C.00433)	(1569	GS17	5OC1967	C.02676)	(1570	GS18	5OC1967	C.C8925)
(1573	GS21	6OC1967	C.00112)	(1574	GS22	6OC1967	C.00575)	(1575	GS2B	6OC1967	C.0C129)
(1544	MU 1	2CC1967	C.00238)	(1547	MS 1	2CC1967	C.01597)	(1520	PD 1	18SE1967	C.00471)
(1521	SH 1	18SE1967	C.00577)	(1526	MO 1	20SE1967	C.01707)	(1527	TR 1	20SE1967	C.0C629)
(1528	SB 1	2CSE1967	C.04332)	(1529	KW 1	20SE1967	C.02398)	(1530	FR 1	24SE1967	C.C3000)
(1531	GM 1	25SE1967	C.00845)	(1545	WL 1	20C1967	C.10136)	(1548	CA 1	30C1967	C.02544)
(1549	MQ 1	4CC1967	C.04111)	(1551	ES 1	5CC1967	C.19171)	(1550	PR 1	5CC1967	C.08673)
(1553	SG 1	6OC1967	C.05141)	(1351	MI 2	21AP1967	C.01241)	(1427	LU 2	29MY1967	C.13317)
(1417	MO 2	22MY1967	C.01495)	(1425	RA 2	25MY1967	C.02652)	(1399	PW 2	5MY1967	C.04761)
(1401	MO 2	6MY1967	C.02352)	(1402	TR 2	6MY1967	C.02707)	(1400	SB 2	6MY1967	C.02383)
(1352	KW 2	21AP1967	C.02577)	(1354	GM 2	25AP1967	C.00173)	(1429	WL 2	29MY1967	C.01062)
(1403	CA 2	1CMY1967	C.10462)	(1404	MC 2	10MY1967	C.03811)	(1405	ES 2	12MY1967	C.03870)
(1349	CI 2	15AP1967	C.0C359)	(1420	IH 2	23MY1967	C.01511)	(1421	CH 2	23MY1967	C.C654C)
(1423	WA 2	25MY1967	C.02141)	(1424	RN 2	25MY1967	C.01332)	(1430	PC 2	12JN1967	C.02467)

Cyclotella operculata (Agardh) Kützing

Frustulia operculata Agardh, Bot. Zeitschr., 1827:627. 1827.
Cyclotella operculata (Agardh) Kützing, Syn. Diat., p. 7. 1834.

Cells cylindrical with slightly excentrically undulate valves. Cells always occur singly. Specimens from Lake Michigan 8-32μ in diameter.. Ornamentation of the marginal zone consists of narrow striae chambers separated by very poorly developed radial costae. Near the margin of the valve the striae chambers open to the interior of the frustule by a series of foramina that appear as a series of bright or dark spots under the light microscope, depending on the level of focus. Striae 15-18 in 10μ near the margin of the valve. The external surface of the striae chambers has a double row of very fine punctae. These are very difficult to resolve and can be seen only with ideal specimens and the best optical equipment. The central area in this species is without visible ornamentation and is usually slightly excentric. In some specimens one or more shortened striae of peculiar structure occur at the margin of the valve.

This species apparently belongs to the complex of described entities with affinities to *C. striata*. It in some respect resembles *C. michiganiana* but is easily differentiated from that taxon by the lack of ornamentation of the central area and its only slightly undulate valves. This species occurrence in Lake Michigan is highly irregular and only occasional collections have it in abundance. It appears that its primary habitat may be in the phytobenthos and that it is only opportunistically planktonic. It is also found in some inland lakes in Michigan. Specimens from these habitats tend to be larger in average size and to have more robust structure than those from Lake Michigan.

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146910	CH	0C1945	C.CC874	146921	CH	23AC1945	C.01293	146917	CH	12JA1946	C.C1275
146915	CH	20FE1946	0.01138	146914	CH	19AP1946	0.00320	146924	CH	10MY1946	C.CC141
146923	CH	22NO1946	0.01748	146920	CH	20DE1946	0.00555	146905	CH	JA1947	C.CC981
146922	CH	21AU1947	C.00242	1228	D 2	14MY1964	0.00389	1229	D 5	14MY1964	C.C1057
1230	E 2	16MY1964	0.CC296	1231	E 3	16MY1964	C.00489	1232	E 5	16MY1964	0.C3131
1234	B 3	18JN1964	0.CC281	1235	C 7	16JN1964	0.00282	1439	B 6	5JN1964	C.CC40C
1237	C* 2	8JN1964	0.00258	1238	D 3	11JN1964	C.00200	1240	D 6	10JN1964	C.0C307
1244	F 1	11JN1964	0.05811	1245	F 2	11JN1964	C.06224	1246	F 3	11JN1964	C.C5379
1255	D 5	15JL1964	0.00257	1258	F 1	6JL1964	C.01180	1259	F 2	6JL1964	C.C4028
1260	F 3	6JL1964	0.01146	1442	B 6	2AU1964	C.00341	1264	C* 1	10AU1964	C.CC575
1265	C* 2	10AU1964	0.00224	1266	D 3	18AU1964	1.22773	1267	D 6	18AU1964	C.00449
1268	E 2	15AU1964	0.04924	1269	E 3	15AU1964	0.57556	1270	F 1	10AL1964	C.14159
1272	C* 1	10SE1964	0.63211	1273	C* 2	10SE1964	0.30647	1274	D 1	17SE1964	C.32844
1275	D 2	17SE1964	0.45158	1276	D 3	18SE1964	C.08941	1277	D 4	18SE1964	C.05577
1278	D 6	18SE1964	0.41508	1279	E 1	16SE1964	0.65968	1280	E 2	16SE1964	C.55309
1281	E 3	16SE1964	1.19295	1282	E 4	16SE1964	2.32687	1283	E 5	16SE1964	3.43263
1284	E 6	17SE1964	2.44654	1285	F 1	15SE1964	4.89197	1286	F 2	15SE1964	2.68170
1287	F 3	15SE1964	1.92654	1288	B 3	19CC1964	C.01306	1289	C 7	14DC1964	C.01759
1290	C* 1	18CC1964	0.05306	1291	C* 2	16CC1964	C.01957	1292	D 1	15DC1964	C.07454
1293	D 2	15CC1964	0.08018	1294	D 3	15CC1964	C.46148	1295	D 4	15DC1964	C.83244
1296	D 5	14DC1964	0.03541	1297	D 6	14DC1964	C.02666	1298	E 1	12DC1964	C.12195
1299	E 2	12DC1964	0.43984	1300	E 3	13DC1964	1.08824	1301	E 4	13DC1964	4.62658
1302	E 5	13CC1964	8.21929	1303	E 6	13DC1964	1.08026	1304	F 1	11DC1964	1.72874
1305	F 2	11CC1964	0.72456	1306	F 3	11DC1964	2.23128	1307	B 6	NO1964	0.01443
1308	C 7	6NO1964	0.006C8	1309	C* 1	10NO1964	C.C2412	1310	C* 2	10AC1964	C.C2041
1311	D 1	8NO1964	0.C129C	1312	D 2	8NO1964	C.02483	1313	D 3	9NO1964	C.C5459
1314	D 4	9NO1964	0.08038	1315	D 5	9NO1964	C.C1820	1316	D 6	9AC1964	C.C5289
1317	E 1	6NO1964	0.04021	1318	E 2	7NO1964	C.17313	1319	E 3	7NO1964	C.4164C
1320	E 4	7NO1964	0.34747	1321	E 5	7NO1964	C.5363C	1322	E 6	7NC1964	C.58320
1323	F 1	6NC1964	0.63415	1324	F 2	6NO1964	0.42392	1325	F 3	6NC1964	C.61714
1337	C 3	2MR1967	0.00147	1338	C 3	28MR1967	C.00264	1339	C 5	28MR1967	C.0C624
1340	C 7	28MR1967	0.00073	1341	A 3	19AP1967	C.00108	1345	C 5	25AP1967	C.0C195
1346	C 7	21AP1967	0.00267	1369	A 4	4MY1967	0.00373	1373	C 7	5MY1967	C.00285
1374	E 2	7MY1967	0.00299	1375	E 3	7MY1967	0.00481	1410	A 6	24MY1967	C.CC584
1411	C 3	31MY1967	0.0041C	1469	C 3	16JL1967	C.00382	1504	A 3	28AU1967	0.04444
1512	E 3	15SE1967	0.00785	1536	E 2	24SE1967	0.00545	1537	E 3	24SE1967	C.03019
1538	E 5	23SE1967	0.05943	1541	E 2	11OC1967	C.00532	1542	E 3	11OC1967	C.35598
1543	E 5	10CC1967	0.00718	1379	GS 3	5MY1967	C.00928	1380	GS 4	9MY1967	C.10762
1381	GS 5	10MY1967	0.0C716	1382	GS 6	10MY1967	0.03053	1383	GS 7	10MY1967	C.04544
1384	GS 8	10MY1967	0.02773	1385	GS 9	10MY1967	C.00706	1386	GS10	12MY1967	C.01724
1387	GS11	12MY1967	0.07129	1388	GS12	12MY1967	0.02413	1389	GS13	12MY1967	C.01805
1390	GS14	12MY1967	0.05285	1391	GS15	12MY1967	C.01915	1392	GS16	12MY1967	C.04623
1393	GS17	13MY1967	0.00822	1394	GS18	13MY1967	0.01204	1395	GS19	13MY1967	C.00587
1398	GS22	14MY1967	C.00304	1554	GS 1	3CC1967	C.02491	1555	GS 2	3DC1967	C.38489
1556	GS 3	3DC1967	0.36502	1557	GS 4	3DC1967	1.70030	1558	GS 5	4DC1967	1.8C355
1559	GS 7	4DC1967	1.22403	1560	GS 8	4DC1967	1.98366	1561	GS 9	4DC1967	0.59870
1562	GS10	5DC1967	0.10115	1563	GS11	5DC1967	C.16368	1564	GS12	5DC1967	C.25512
1565	GS13	5CC1967	C.3955C	1566	GS14	5DC1967	C.77050	1567	GS15	5DC1967	C.21754
1568	GS16	5DC1967	0.01876	1569	GS17	5DC1967	0.13973	1570	GS18	5DC1967	C.C4942
1571	GS19	6DC1967	0.00117	1573	GS21	6DC1967	C.00112	1574	GS22	6DC1967	C.C1438
1575	GS20	6DC1967	0.00129	1522	BH 1	18SE1967	C.00365	1548	CA 1	3DC1967	0.86503
1549	MQ 1	4DC1967	C.92189	1551	ES 1	5DC1967	C.17573	1553	SG 1	6DC1967	C.C1469
1428	MU 2	29MY1967	C.00301	1426	MS 2	29MY1967	C.01050	1418	SH 2	22MY1967	C.C1555
1350	BH 2	19AP1967	0.00661	1359	PW 2	5MY1967	C.CC680	1402	TR 2	6MY1967	C.00541
1352	KW 2	21AP1967	C.0C859	1403	CA 2	10MY1967	0.23539	1404	MQ 2	10MY1967	C.C5C81
1405	ES 2	12MY1967	0.0C515	1407	SH 2	14MY1967	C.01791	1420	IH 2	23MY1967	0.01511
1422	GA 2	23MY1967	0.00511	1423	WA 2	25MY1967	0.00428				

Cyclotella pseudostelligera Hust.

Cyclotella pseudostelligera Hustedt *in*: Huber-Pestalozzi, Binnengew., 16(2):397, fig. 485. 1942.

Cells cylindrical with slightly concentrically undulate valves. Specimens from Lake Michigan 5-9μ in diameter. Cells always occur singly. Marginal zone narrow, usually less than one-half the radius of the valve. Ornamentation of the marginal zone consists of fine radial striae, without visible substructure, about 18 in 10μ at the margin of the valve and a marginal co-

rona of short, stout spines with somewhat expanded bases. The central area of the valve is ornamented with a stellate group of short striae radiating around a central puncta. In occasional specimens the ornamentation of the central area is poorly developed or lacking. In most specimens a distinct, structureless, hyaline space separates the two areas of ornamentation on the valve surface.

With the exception of the marginal spines, the morphologic characteristics of this species are quite similar to *C. stelligera*. The structures of the frustule of *C. pseudostelligera* are somewhat finer and its distribution tends to be more restricted than *C. stelligera*. It is abundant only in eutrophied inshore waters and in estuaries of the main lake.

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146915	CH		20FE1946	0.01787	146523	CH		22AG1946	0.01093	146920	CH		20DE1946	C.0CC71
146905	CH		JA1947	0.00123	146506	CH		MY1947	C.01394	146907	CH		JL1947	C.00247
146913	CH		6AU1947	C.01046	146922	CH		21AU1947	C.47253	146771	EV		11JN1937	C.0C278
146764	EV		17JL1937	0.04446	146757	EV		25JL1937	0.29869	146767	EV		1AU1937	C.01238
146763	EV		23AU1937	C.02029	146765	EV		30AU1937	0.13943	146760	EV		22SE1937	C.C2462
146744	EV		8OC1937	0.00488	146767	EV		27DC1937	C.00774	146768	EV		16MR1938	C.C1478
146756	EV		27AP1938	0.00904	146759	EV		19MY1938	C.00675	146761	EV		27MY1938	C.0C545
1439	B 6		5JN1964	0.01399	1440	B 6		11JL1964	C.03317	1441	B 6		24JL1964	C.01562
1250	C 6		10JL1964	0.00411	1252	C' 1		16JL1964	C.00279	1254	D 2		19JL1964	C.00383
1255	D 5		19JL1964	0.01540	1256	E 2		24JL1964	0.00183	1257	E 3		14JL1964	C.00479
1258	F 1		6JL1964	0.C1180	1259	F 2		6JL1964	0.00910	1262	B 3		17AU1964	C.CC210
1442	B 6		2AU1964	0.00682	1443	B 6		16AU1964	C.00395	1264	C' 1		10AU1964	C.0C193
1265	C' 2		10AU1964	0.01118	1266	C 3		18AU1964	1.47327	1267	D 6		18AU1964	C.CC432
1268	E 2		15AU1964	0.21064	1269	E 3		15AU1964	C.04933	1270	F 1		10AU1964	C.02178
1273	C' 2		10SE1964	C.02688	1275	D 2		17SE1964	C.02580	1277	D 4		10SE1964	C.01859
1278	D 6		10SE1964	0.00384	1279	E 1		16SE1964	0.00785	1280	E 2		16SE1964	C.00681
1281	E 3		16SE1964	0.02395	1282	E 4		16SE1964	C.02216	1283	E 5		16SE1964	C.CC613
1284	E 6		17SE1964	0.00318	1285	F 1		15SE1964	C.00153	1287	F 3		15SE1964	C.C3002
1288	B 3		15OC1964	0.00435	1445	B 6		14CC1964	C.00652	1289	C 7		14OC1964	C.C1319
1291	C' 2		14OC1964	0.00489	1292	D 1		15CC1964	C.00765	1293	D 2		15OC1964	C.01415
1295	D 4		15CC1964	C.02973	1296	E 5		14CC1964	C.01180	1297	D 6		14CC1964	C.CC381
1298	E 1		12DC1964	0.01346	1299	E 2		12DC1964	0.02199	1300	E 3		13DC1964	C.05012
1301	E 4		13CC1964	0.04182	1302	E 5		13CC1964	C.00810	1304	F 1		11CC1964	C.0C741
1305	F 2		11OC1964	0.01380	1306	F 3		11DC1964	C.01286	1307	B 6		NC1964	C.CC722
1308	C 7		6NO1964	C.CC912	1309	C' 1		10NO1964	C.01126	1310	C' 2		10NC1964	C.C2041
1311	D 1		8NO1964	0.00774	1312	D 2		8NO1964	C.02483	1313	D 3		9NC1964	C.02703
1314	D 4		9NO1964	0.01148	1315	D 5		9NO1964	0.01365	1316	D 6		9NO1964	C.C1889
1317	E 1		6NO1964	0.01356	1318	E 2		7NO1964	C.02663	1319	E 3		7NC1964	C.08117
1320	E 4		7NO1964	0.15305	1321	E 5		7NO1964	C.04469	1322	E 6		7NC1964	C.C1000
1323	F 1		6NO1964	0.01115	1324	F 2		6NO1964	C.01398	1325	F 3		6NC1964	C.00252
1336	C 3		27JA1967	0.00385	1337	C 3		2MR1967	0.00588	1338	C 3		28MR1967	C.C0926
1340	C 7		28MR1967	0.01018	1341	A 3		19AP1967	C.00542	1342	A 4		19AP1967	C.00902
1343	A 6		19AP1967	0.00069	1345	C 7		25AP1967	0.00195	1346	C 7		21AP1967	C.22432
1347	F 2		23AP1967	0.00813	1348	E 5		23AP1967	0.01234	1374	E 2		7MY1967	C.0C299
1408	A 3		23MY1967	0.00447	1416	E 5		28MY1967	C.01093	1437	E 3		15JN1967	C.CC269
1446	A 3		11JL1967	0.00485	1447	A 4		11JL1967	0.00936	1449	C 3		10JL1967	C.11082
1450	C 5		10JL1967	0.29135	1451	C 7		10JL1967	0.00591	1452	E 2		14JL1967	C.C7664
1453	E 3		19JL1967	0.01917	1454	E 5		19JL1967	C.01000	1508	C 3		25E1967	0.00400
1509	C 5		2SE1967	0.00509	1511	E 2		1SE1967	C.04604	1512	E 3		1SE1967	C.C1571
1513	E 5		31AU1967	0.00567	1732	A 3		18SE1967	0.00697	1533	A 4		19SE1967	C.00928
1534	A 6		15SE1967	0.00310	1536	E 2		24SE1967	C.01363	1538	E 5		23SE1967	C.01105
1540	C 5		4OC1967	0.00993	1541	E 2		11OC1967	0.04918	1542	E 3		11OC1967	C.04088
1543	E 5		10OC1967	0.02873	1380	GS 4		9PY1967	C.00168	1384	GS 8		10MY1967	C.CC105
1394	GS10		13MY1967	0.00172	1555	GS 2		30C1967	C.01059	1557	GS 4		30C1967	C.00374
1561	GS 6		4OC1967	0.00587	1562	GS10		5CC1967	C.00247	1573	GS21		6OC1967	C.CC112
1544	MU 1		2OC1967	0.00715	1547	MS 1		2OC1967	C.00798	1521	SM 1		18SE1967	C.0C577
1522	BM 1		18SE1967	0.11670	1523	RA 1		19SE1967	0.13838	1526	MO 1		20SE1967	C.0C569
1529	MM 1		2CSE1967	0.02398	1545	WL 1		2OC1967	C.02027	1549	PG 1		4OC1967	C.04852
1551	ES 1		5OC1967	0.00799	1552	SM 1		6OC1967	0.00660	1550	PR 1		5OC1967	C.44604
1428	MU 2		29MY1967	0.01507	1426	MS 2		29PY1967	0.02100	1351	PI 2		21AP1967	C.02483
1417	MO 2		22MY1967	0.71781	1350	SM 2		19AP1967	0.25770	1400	SD 2		8MY1967	C.20848
1352	MM 2		21AP1967	0.02577	1403	CA 2		10PY1967	C.03923	1349	CI 2		19AP1967	C.00359

Cyclotella stelligera (Cleve and Grun.) V. H.

Cyclotella meneghiniana var.? *stelligera* Cleve and Grun., Kongl. Sven. Vet.-Akad. Handl., 18(5):22, pl. 5, fig. 63. 1881.
Cyclotella stelligera (Cleve and Grun.) V. H., Syn. Diat. Belgique, pl. 94, fig. 22-27. 1882.

Cells cylindrical with slightly concentrically undulate valves. Cells always occur singly. Specimens from Lake Michigan 3-24μ in diameter. Marginal zone narrow, only about one-fourth the radius of the valve. Ornamentation of the marginal zone composed of striae without visible substructure. Striae quite coarse, about 11-14 in 10μ, all of approximately equal length. Other structures, such as ribs, chambers, or slime pores are lacking. Ornamentation of the central area is quite variable. Usually a single large puncta is present in the center of the valve. A number of irregular ribs radiate around the center giving a stellate central structure. Smaller, isolated puncta or thickenings may occur between the major structures. In the smaller cells this entire central ornamentation is reduced to a stellate cluster of dots. In some specimens the entire central area is covered by very fine puncta which may be either radially or randomiy distributed.

130 CYSTELLA TEST NO OF STATIONS 444

160973	CH		1876	0.11809	1	3541	CH							19FE1801	C.C1132
146910	CH		DE1945	0.02296	146921	CH		23ND1945	C.01229	146908	CH		DE1945	C.C4028
146917	CH		12JA1946	0.00582	146915	CH		20FE1946	0.15364	146914	CH		19AP1946	C.01815
146924	CH		10MY1946	0.00584	146923	CH		22ND1946	0.06775	146920	CH		20DE1946	C.CC893
146905	CH		JA1947	0.02206	146909	CH		MR1947	0.07286	146912	CH		AP1947	C.C1150
146916	CH		4MY1947	0.00238	146926	CH		MY1947	C.04779	146919	CH		5JN1947	C.12291
146907	CH		JL1947	0.00296	146922	CH		21AU1947	0.91503	146758	EV		5JN1937	C.C1070
146764	EV		17JL1937	0.02417	146757	EV		25JL1937	0.08184	146747	EV		1AU1937	C.21784
146763	EV		23AU1937	0.73023	146765	EV		30AU1937	0.68600	146749	EV		7SE1937	C.06513
146752	EV		15SE1937	0.10884	146760	EV		22SE1937	0.03939	146750	EV		24SE1937	C.06127
146744	EV		80C1937	0.16730	146767	EV		27DC1937	0.01160	146749	EV		12MR1938	C.07282
146768	EV		16MR1938	0.04410	146762	EV		18MR1938	C.22056	146756	EV		27AP1938	C.0C336
146755	EV		19MY1938	0.00338	146761	EV		27MY1938	0.00818	1 1226	C 7		16MY1964	C.CC381
1 1228	D 2		14MY1964	0.00779	1 1229	D 5		14MY1964	C.00423	1 1231	E 3		16MY1964	C.C1223
1 1232	E 5		16MY1964	0.00174	1 1236	C* 1		8JN1964	0.00175	1 1237	C* 2		8JN1964	C.CC258
1 1250	C 6		10JL1964	0.00822	1 1255	C 5		15JL1964	0.00513	1 1256	E 2		14JL1964	C.CC183
1 1257	E 3		14JL1964	0.00957	1 1258	F 1		6JL1964	0.00236	1 1260	F 3		6JL1964	C.CC955
1 1265	C* 2		10AU1964	0.00224	1 1444	B 6		19SE1964	0.02122	1 1272	C* 1		10SE1964	C.05336
1 1273	C* 2		10SE1964	0.01613	1 1275	D 2		17SE1964	C.01290	1 1276	D 3		18SE1964	C.C1118
1 1279	E 1		16SE1964	0.01571	1 1280	E 2		16SE1964	0.00681	1 1286	F 2		15SE1964	C.02189
1 1287	F 3		15SE1964	0.02504	1 1445	B 6		14DC1964	C.00326	1 1338	C 3		28MR1967	C.CC529
1 1339	C 5		28MR1967	0.00312	1 1340	C 7		28MR1967	0.00145	1 1342	A 4		19AP1967	C.CC361
1 1343	A 6		19AP1967	0.00139	1 1344	C 3		25AP1967	C.00331	1 1346	C 7		21AP1967	C.00668
1 1347	E 2		23AP1967	0.00325	1 1348	E 5		23AP1967	0.00685	1 1373	C 7		5MY1967	C.CC285
1 1374	E 2		7MY1967	0.00598	1 1376	E 5		6MY1967	C.00281	1 1408	A 3		23MY1967	C.CC447
1 1433	C 3		17JN1967	0.00646	1 1446	A 3		11JL1967	0.00245	1 1447	A 4		11JL1967	C.01170
1 1449	C 3		16JL1967	0.00764	1 1450	C 5		16JL1967	C.00190	1 1451	C 7		16JL1967	C.CC591
1 1452	E 2		14JL1967	0.01498	1 1453	E 3		15JL1967	0.01264	1 1454	E 5		15JL1967	C.00400
1 1504	A 3		28AU1967	0.00247	1 1509	C 5		25SE1967	C.00505	1 1511	E 2		15SE1967	0.01535
1 1512	E 3		15SE1967	0.01178	1 1513	E 5		31AU1967	0.00507	1 1532	A 3		18SE1967	C.CC986
1 1531	A 5		19SE1967	0.00444	1 1539	C 7		40C1967	C.01510	1 1541	E 2		11OC1967	C.01064
1 1542	E 3		11OC1967	0.01017	1 1543	E 5		10OC1967	0.00718	1 1382	GS 6		10MY1967	C.CC278
1 1383	GS 7		10MY1967	0.00267	1 1554	GS 1		3DC1967	0.00712	1 1555	GS 2		30C1967	C.CC353
1 1556	GS 3		3DC1967	0.01904	1 1558	GS 5		40C1967	C.00396	1 1559	GS 7		40C1967	C.01049
1 1560	GS 8		40C1967	C.00472	1 1562	GS10		50C1967	0.00740	1 1570	GS10		50C1967	C.CC992
1 1571	GS19		60C1967	0.00059	1 1576	GS22		60C1967	C.00575	1 1524	PI 1		20SE1967	C.02189
1 1546	LU 1		20C1967	0.01000	1 1527	TR 1		20SE1967	0.01258	1 1545	ML 1		20C1967	C.0C676
1 1550	MR 1		5OC1967	0.00195	1 1351	MI 2		21AP1967	C.02793	1 1399	PW 2		5MY1967	C.C1360
1 1400	SB 2		6MY1967	0.01191	1 1352	MN 2		21AP1967	C.06013	1 1403	CA 2		10MY1967	C.03923
1 1404	MG 2		10MY1967	0.01270	1 1405	ES 2		12MY1967	C.00645	1 1349	CI 2		19AP1967	C.00718
1 1423	WA 2		25MY1967	0.00428	1										

Cyclotella temperei M. Per. and Hérib.

Cyclotella temperei M. Peragallo and Héribaud *in*: Héribaud, Foss. Diat. Auvergne, Vol. I, p. 35, pl. 8, fig. 23. 1902.

Cells cylindrical, surface of the valves flat or only slightly concave. Cells occur singly. Specimens from Lake Michigan 8-12μ in diameter. Marginal zone of the valves very broad about three-fourths the diameter of the valve. Ornamentation of the marginal zone consists of anastomosing striae of varying length, somewhat sinuous and without visible substructure. The longest of the striae are of equal length, forming an even border to the central area. A series of marginal spines are present. Striae 14-18 in 10μ at the margin of the valve. Spines widely but regularly spaced, about 4 in 10μ. The central area is small and circular. Its only ornamentation is a rosette of quite small but conspicuous puncta surrounding the center of the valve.

Specimens of this species are very rare in collections from Lake Michigan. It was originally described from fossil material and it is entirely possible that the specimens we have observed are not of recent origin. It is also possible that this species belongs to the group of "pleistocene relicts" that survive in benthic communities in relatively deep water in the upper Great Lakes. The only other taxon found in Lake Michigan that resembles *C. temperei* in morphology is *C. wolterecki* Hust. Although Hustedt (1942) points this out in his discussion of *C. wolterecki*, he does not alude to *Cladogramma cebuense* Grun., which, although larger and more coarsely structured, is remarkably similar to the two entities discussed above in structure and which, like *C. wolterecki*, was described from the western Pacific Islands.

132 CYTEMPER TCT NO OF STATIONS 7

(1344	MU 1	20C1967	0.00238)	(1522	BH 1	18SE1967	1.60464)	(1550	PR 1	5OC1967	0.39648)
(1350	BH 2	19AP1967	1.23345)	(1400	SB 2	6MY1967	0.00596)	(1353	PR 2	23AP1967	0.01055)
(1422	GA 2	23MY1967	0.00511)	(							

Cyclotella wolterecki Hust.

Cyclotella wolterecki Hustedt, Internat. Rev. Hydrobiol., 42;16, text fig. 11-13. 1942.

Cells cylindrical with slightly concentrically undulate valves, usually sunken in the center. Cells occur singly. Specimens from Lake Michigan 4-9μ in diameter. The main visible ornamentation on the valve surface is a series of radiate striae of varying lengths and without visible substructure. The longest of these striae reach nearly to the center of the valve so that the central area is reduced to a small, circular area only 1-2μ in diameter. This area usually contains a single, large puncta. The striae are fine, about 22 in 10μ at the margin of the valve, and somewhat difficult to resolve to the thinness of the valve and to their highly irregular length. A series of more or less well developed spines, with thickened and expanded bases, are usually visible at the margin of the valves. The spines are randomly arranged and appear to have no special orientation to the striae or to one another.

This species, like *C. atomus* Hust., was originally described from the tropics. Although this distribution is quite unusual, the forms from Lake Michigan appear to be morphologically identical with the specimens described and figured by Hustedt (1. c.). Indeed the morphology of this taxon is almost unique. The only species that resembles it in general structure of the valve and arrangement of ornamentation is *C. temperei*, which, according to published descriptions and illustrations, is a considerably larger and more coarsely structured form.

133 CYWOLTER TCT NC CF STATIONS 4

(1243	E 6	13JN1964	0.00418)	(1446	A 3	11JL1967	0.00245)	(1557	GS 4	30C1967	0.00374)
(1550	PR 1	5OC1967	0.01239)	(							

Species *incertae sedis*

Cyclotella sp. #1.

134 CYSPECOA TCT NC CF STATIONS 1

(1245	F 2	11JN1964	0.00692)	(									

Cyclotella sp. #2.

135 CYSPECOB TCT NO OF STATIONS 10

(1284	E 6	17SE1964	0.00953)	(1285	F 1	15SE1964	C.01165)	(1320	E 4	7NO1964	C.CC827)
(1321	E 5	7NO1964	0.00638)	(1322	E 6	7NO1564	C.01666)	(1323	F 1	6NO1564	C.00279)
(1324	F 2	6NO1964	0.01165)	(1325	F 3	6NO1964	0.00504)	(1536	E 2	24SE1567	C.0C273)
(1541	E 2	11OC1967	0.01597)	(							

Cyclotella sp. (aff. *C. striata* var. *bipunctata* Fricke).

131 CYSTRIVB TCT NO OF STATIONS 3

(1240	D 6	10JN1964	C.00920)	(1243	E 6	13JN1964	0.00209)	(1504	A 3	28AU1967	C.0C247)

Genus *Cymatopleura* Wm. Smith

Wm. Smith, Annals Mag. Nat. Hist., 7(2):13. 1851.

Freshwater members of the genus *Cymatopleura* find their primary habitat in epipelic communities. They are, however, also successful facultative planktonts and occur in low to moderate numbers in plankton collections.

Cymatopleura cochlea J. Brun.

Cymatopleura cochlea J. Brun, Mem. Soc. Phys. Hist. Nat. Geneve, 31:25, pl. 276, fig. 6. 1911.

136 CTCOCHLE TCT NO OF STATIONS 16

(3541	CH	1FE1881	0.01956)	(46517	CH	12JA1946	0.00055)	(46914	CH	19AP1946	C.00107)
(46916	CH	4MY1947	0.00034)	(46522	CH	21AU1947	0.00194)	(46764	EV	17JL1937	C.CC806)
(46763	EV	23AU1937	C.02029)	(46752	EV	15SE1937	C.02177)	(46767	EV	27OC1937	C.CC387)
(46762	EV	18MR1938	0.08822)	(1391	GS15	12MY1967	0.00479)	(1394	GS18	13MY1967	C.CC172)
(1395	GS19	13MY1567	0.00117)	(1396	GS2C	13MY1567	C.00074)	(1568	GS16	5OC1567	C.CC433)
(1569	GS17	5OC1967	0.00149)	(							

Cymatopleura elliptica (Bréb. and Godey) Wm. Smith

Surirella elliptica de Brébisson and Godey, Consid. Diat., p. 17. 1838.
Cymatopleura elliptica (Bréb. and Godey) wm. Smith, Annals Mag. Nat. Hist., Ser. 2, 7:13, pl. 7, fig. 10-11. 1851.

137 CTELLIPT TCT NO OF STATIONS 5

(46758	EV	5JN1937	0.0C357)	(46743	EV	20JN1937	C.00856)	(46757	EV	25JL1937	C.CC481)
(46747	EV	1AU1937	0.00495)	(46765	EV	30AU1937	0.00558)	(			

Cymatopleura solea (Bréb. and Godey) Wm. Smith

Cymbella solea de Brébisson and Godey, Mem. Soc. Acad. Sci. Falaise, 1:51, pl. 7. 1835.
Cymatopleura solea (Bréb. and Godey) Wm. Smith, Annals Mag. Nat. Hist., Ser. 2, 7:12, pl. 3, figs. 8-9. 1851.

138 CTSOLEA TCT NO OF STATIONS 144

(60973	CH	1876	0.04724)	(3540	CH	11MY1875	0.C0932)	(3541	CH	1FE1881	C.26411)
(3507	CH	19FE1881	0.02264)	(46910	CH	OC1945	0.00546)	(46921	CH	23NO1945	C.04204)
(46917	CH	12JA1946	0.01275)	(46514	CH	19AP1946	C.03097)	(46924	CH	10MY1946	0.22927)
(46923	CH	22NO1946	0.15736)	(46520	CH	20DE1946	0.01232)	(46905	CH	JA1947	C.01103)
(46909	CH	MR1947	0.02277)	(46916	CH	4MY1947	0.01561)	(46906	CH	MY1947	C.01062)
(46919	CH	5JN1947	0.01214)	(46907	CH	JL1947	0.05375)	(46922	CH	21AU1947	C.01163)
(46758	EV	5JN1937	0.03923)	(46743	EV	20JN1937	0.05138)	(46745	EV	3JL1937	C.08359)
(46764	EV	17JL1937	0.05641)	(46757	EV	25JL1937	0.03852)	(46747	EV	1AU1937	C.C2228)
(46765	EV	30AU1937	0.01672)	(46752	EV	15SE1937	0.02177)	(46760	EV	22SE1937	C.00985)
(46750	EV	24SE1937	0.01414)	(46744	EV	6OC1937	0.00975)	(46748	EV	13OC1937	C.06405)
(46767	EV	27OC1937	0.00774)	(46749	EV	12MR1938	0.01214)	(46768	EV	16MR1938	C.C1470)
(46762	EV	18MR1938	0.08822)	(46751	EV	30MR1938	0.02233)	(46756	EV	27AP1938	0.00504)
(46755	EV	19MY1938	0.0C675)	(46761	EV	27MY1938	0.03543)	(46766	EV	14DE1938	C.C3169)
(1225	C 6	15MY1964	0.CC362)	(1228	D 2	14MY1964	0.00584)	(1229	D 5	14MY1964	C.CC423)
(1230	E 2	16MY1564	0.00593)	(1231	E 3	16MY1564	C.01223)	(1232	E 5	16MY1564	C.01391)
(1233	B 3	5JN2964	C.00238)	(1439	B 6	5JN1964	0.00200)	(1237	C* 2	8JN1964	C.CC516)
(1238	D 3	11JN1964	0.00400)	(1241	E 2	13JN1564	C.00148)	(1242	E 3	13JN1964	C.CC300)
(1243	E 6	13JN1964	0.00209)	(1244	F 1	11JN1964	0.00439)	(1245	F 2	11JN1964	C.C1037)
(1246	F 3	11JN1564	C.C1195)	(1248	B 3	24JL1564	C.00197)	(1252	C* 1	16JL1564	C.CC558)
(1254	D 2	15JL1964	0.00383)	(1257	E 3	14JL1564	C.00239)	(1259	F 2	6JL1964	C.CC310)
(1260	F 3	6JL1564	0.00191)	(1269	E 3	15AU1964	C.00274)	(1285	F 1	15SE1964	C.CC582)
(1304	F 1	11OC1964	0.00741)	(13C7	B 6	NO1964	C.00361)	(1313	D 3	9NO1964	C.CC193)
(1323	F 1	6NO1964	0.00139)	(1325	F 3	6NO1564	C.00252)	(1338	C 3	28MR1967	0.CC397)
(1339	C 5	28MR1567	0.00624)	(1340	C 7	28MR1967	C.00073)	(1342	A 4	19AP1967	C.CC180)
(1343	A 6	19AP1967	0.00486)	(1344	C 3	25AP1567	C.00165)	(1345	C 5	25AP1967	C.C1170)
(1346	C 7	21AP1967	0.00134)	(1347	E 2	23AP1967	C.00325)	(1348	E 5	23AP1967	C.00137)
(1368	A 3	4MY1567	C.02828)	(1370	A 6	3MY1967	0.01381)	(1371	C 3	4MY1967	C.CC693)
(1372	C 5	5MY1967	0.01419)	(1373	C 7	5MY1567	C.00856)	(1374	E 2	7MY1967	C.CC598)
(1375	E 3	7MY1567	0.01203)	(1376	E 5	6MY1567	C.00281)	(1410	A 6	24MY1567	C.C1691)
(1411	C 3	31MY1567	C.00410)	(1412	C 5	31MY1967	C.00842)	(1413	C 7	25MY1967	C.CC632)
(1414	E 2	28MY1967	0.0C336)	(1416	E 5	28MY1567	C.00219)	(1432	A 4	13JN1967	C.CC255)
(1433	C 3	17JN1967	C.0C646)	(1434	C 5	17JN1967	0.00598)	(1436	E 2	15JN1967	C.CC724)
(1437	E 3	15JN1967	0.00538)	(1448	A 6	10JL1967	0.00354)	(1449	C 3	16JL1567	C.C0382)
(1453	E 3	15JL1967	0.00253)	(1511	E 2	15E1567	C.00307)	(1379	GS 3	9MY1567	C.0C309)
(1380	GS 4	9MY1967	0.00336)	(1381	GS 5	10MY1967	0.00239)	(1382	GS 6	10MY1967	C.C0278)
(1384	GS 8	10MY1967	0.00924)	(1387	GS11	12MY1967	C.01188)	(1388	GS12	12MY1967	C.14480)
(1389	GS13	12MY1567	0.01289)	(1390	GS14	12MY1967	0.02349)	(1391	GS15	12MY1967	C.04310)

(1392	GS16	12MY1967	0.01233)	(1393	GS17	13MY1967	0.02192)	(1394	GS18	13MY1967	C.08429)
(1395	GS19	13MY1967	0.02114)	(1396	GS20	13MY1967	C.00074)	(1397	GS21	13MY1967	C.00327)
(1566	GS14	5CC1967	0.00367)	(1567	GS15	5DC1967	C.00635)	(1568	GS16	5DC1967	C.00144)
(1569	GS17	5DC1967	0.01338)	(1570	GS18	5CC1967	C.00992)	(1572	GS20	6DC1967	C.00090)
(1575	GS28	6DC1967	0.00516)	(1546	LU 1	20C1967	C.00500)	(1520	HO 1	18SE1967	C.CC471)
(1552	SM 1	6DC1967	0.01981)	(1553	SG 1	6DC1967	C.00734)	(1428	PU 2	29MY1967	C.00301)
(1426	MS 2	29MY1967	0.C5249)	(1351	MI 2	21AP1967	C.00621)	(1417	HO 2	22MY1967	C.C1495)
(1350	BM 2	19AP1967	0.00661)	(1401	MC 2	6MY1967	0.01176)	(1402	TR 2	6MY1967	C.01083)
(1400	SB 2	6MY1967	0.02383)	(1354	GH 2	25AP1967	0.00173)	(1429	WL 2	29MY1967	C.C1062)
(1403	CA 2	10MY1967	0.02615)	(1349	CI 2	19AP1967	0.00359)	(1419	EU 2	23MY1967	C.C5492)
(1422	GA 2	23MY1967	0.02555)	(1423	WA 2	25MY1967	0.01713)	(1424	MN 2	25MY1967	C.01332)

Cymatopleura solea var. *apiculata* (Wm. Smith) Ralfs

Cymatopleura apiculata Wm. Smith, Syn. British Diat., Vol. 1, p. 37, pl. 10, fig. 79. 1853.
Cymatopleura solea var. *apiculata* (Wm. Smith) Ralfs *in*: Pritchard, Hist. Infus., p. 793. 1861.

139 CTSOLEVA TOT NO OF STATIONS 39

(60973	CH	1876	0.04724)	(3541	CH	1FE1881	C.00578)	(46921	CH	23NC1945	C.CC065)
(46917	CH	12JA1946	0.00083)	(46514	CH	19AP1946	0.00107)	(46924	CH	10MY1946	0.00282)
(46905	CH	JA1947	0.00123)	(46516	CH	4MY1547	0.00136)	(46907	CH	JL1547	C.CC247)
(46922	CH	21AU1947	C.00048)	(46758	EV	5JN1937	C.01070)	(46743	EV	20JN1937	C.00856)
(46744	EV	6DC1937	C.00975)	(46749	EV	12MR1938	C.01214)	(46751	EV	30MR1538	C.C2233)
(46759	EV	19MY1938	0.CC675)	(1230	E 2	16MY1964	0.00296)	(1289	C 7	14DC1964	C.CC44C)
(1343	A 6	19AP1967	0.00069)	(1345	C 5	25AP1967	C.00195)	(1376	E 5	6MY1967	C.00281)
(1408	A 3	23MY1967	0.0C894)	(1414	E 2	28MY1967	0.00672)	(1415	E 3	28MY1967	C.CC450)
(1432	A 4	13JN1967	0.00255)	(1434	C 5	17JN1967	C.00299)	(1435	C 7	13JN1967	C.00316)
(1377	GS 1	5MY1967	0.00396)	(1381	GS 5	10MY1967	0.00239)	(1386	GS10	12MY1967	C.00287)
(1388	GS12	12MY1967	0.00603)	(1390	GS14	12MY1967	0.00587)	(1391	GS15	12MY1967	C.CC55E)
(1394	GS18	13MY1967	0.00172)	(1573	GS21	6DC1967	C.00112)	(1550	PR 1	5DC1967	C.01239)
(1395	PW 2	5MY1967	0.01360)	(1401	MC 2	6MY1567	0.00588)	(1422	CA 2	23MY1967	C.CC511)

Cymatopleura solea var. *clavata* O. Müll.

Cymatopleura solea var. *clavata* O. Müller, Bot. Jahrb., 34(1):22, fig. 1. 1903.

140 CTSCLEVC TOT NO OF STATIONS 1

(46747	EV	1AU1937	0.00248)	(

Cymatopleura solea var. *regula* (Ehr.) Grun.

Surirella regula Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:136. 1841.
Cymatopleura regula Ralfs *in*: Pritchard, Hist. Infus., p. 793. 1861.
Cymatopleura solea var. *regula* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:466. 1862.

141 CTSCLEVR TOT NO OF STATIONS 6

(60973	CH	1876	0.11809)	(3541	CH	1FE1881	0.00578)	(46914	CH	19AP1946	C.CC107)
(46919	CH	5JN1947	0.00303)	(46507	CH	JL1947	0.00197)	(46922	CH	21AU1947	C.00048)

Genus *Cymbella* Agardh

Agardh, Consp. Crit. Diat., p. 1. 1830.

Members of the genus *Cymbella* find their primary habitat in periphyton or epipelic communities. The specimens that occur in our collections are most likely derived from such habitats in most instances.

Cymbella acutiuscula Cleve

Cymbella acutiuscula Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2): 164, pl. 4, fig. 26. 1894.

Coll: 1404.

Cymbella aequalis Wm. Smith

Cymbella aequalis Wm. Smith *in*: Greville, Annals Mag. Nat. Hist., Ser. 2, 16:255, pl. 9, fig. 4. 1855.

185 CBSPECCE TCT NC CF STATICNS 2

(46917	CH	12JA1946	0.00028)	(1258	F 1	6JL1964	0.00236)	(			

Cymbella affinis Kützing.

Cymbella affinis Kützing, Bacill., p. 80, pl. 6, fig. 15. 1844.

142 CBAFFINI TCT NC CF STATICNS 25

(46917	CH	12JA1946	0.00028)	(46924	CH	10MY1946	C.00071)	(46906	CH	MY1947	C.CC133)
(46915	CH	5JN1947	0.00152)	(46922	CH	21AU1947	C.00048)	(46758	EV	5JN1937	C.22110)
(46743	EV	20JN1937	0.00428)	(46764	EV	17JL1937	C.00806)	(46757	EV	25JL1937	C.CC481)
(46763	EV	23AU1937	0.02029)	(46769	EV	7SE1937	C.02171)	(46760	EV	22SE1937	C.CC492)
(46750	EV	24SE1937	C.CC942)	(1229	D 5	16MY1964	0.00211)	(1240	D 6	10JN1964	C.CC153)
(1244	F 1	11JN1964	C.CC110)	(1245	F 2	11JN1964	C.00346)	(1256	E 2	14JL1964	C.CC183)
(1270	F 1	10AL1964	0.00545)	(1279	E 1	16SE1964	C.00785)	(1287	F 3	15SE1964	C.00500)
(1348	C 7	21AP1967	0.00134)	(1388	GS12	12MY1967	0.02413)	(1389	GS13	12MY1967	C.CC258)
(1392	GS16	12MY1967	0.00616)	(1565	GS13	5DC1967	C.01014)	(1567	GS15	5DC1967	C.CC318)
(1569	GS17	5DC1967	0.00297)	(1571	GS19	6DC1967	C.00176)	(1574	GS22	6DC1967	C.00575)
(1350	BM 2	19AP1967	C.CC881)	(1401	MO 2	6MY1967	C.00588)	(1403	CA 2	10MY1967	C.C3923)
(1407	SM 2	14MY1967	C.00597)	(1406	GB 2	13MY1967	C.00270)	(			

Cymbella amphicephala Naeg. *ex* Kützing.

Cymbella amphicephala Naegli *ex* Kützing, Sp. Alg., p. 890. 1849.

143 CBAMPHIC TCT NC CF STATICNS 3

(46764	EV	17JL1937	C.CC806)	(1389	GS13	12MY1967	C.00258)	(1530	FR 1	24SE1967	C.C1000)

Cymbella angustata (Wm. Smith) Cleve

Navicula angustata Wm. Smith, Syn. British Diat., Vol. I, p. 52, pl. 17, fig. 156. 1853.
Cymbella angustata (Wm. Smith) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):161. 1895.

144 CBANGUST TCT NC CF STATICNS 3

(46764	EV	17JL1937	C.CC806)	(46757	EV	25JL1937	C.CC481)	(46747	EV	1AU1937	C.CC248)

Cymbella aspera (Ehr.) Hérib.

Cocconema asperum Ehrenberg, Ber. Akad. Wiss. Berlin, 1839:30. 1839.
Cymbella aspera Héribaud, Diat. Auvergne, p. 99, pl. 3, fig. 10. 1893.

145 CBASPERA TCT NC CF STATICNS 3

(1512	E 3	1SE1967	0.00393)	(1350	GS14	12MY1967	C.00587)	(1404	PG 2	10MY1967	C.C1270)

Cymbella cesatii Grun.

Cymbella cesatii Grunow *in*: A. Schmidt, Atlas Diat., pl. 71, figs. 48-49. 1881.

146 CBCESATI TOT NO OF STATIONS 14

(46919	CH		5JN1947	0.00455)	(1244	F 1		11JN1964	0.00219)	(1245	F 2		11JN1964	0.00346)
(1246	F 3		11JN1964	0.00598)	(1258	F 1		6JL1964	0.00708)	(1259	F 2		6JL1964	0.00310)
(1260	F 3		6JL1964	0.00191)	(1285	F 1		15SE1964	0.02330)	(1305	F 2		11DC1964	0.00173)
(1388	GS12		12MY1967	0.00603)	(1390	GS14		12MY1967	0.00587)	(1394	GS18		13MY1967	0.00172)
(1403	CA 2		10MY1967	0.03923)	(1404	MC 2		10MY1967	0.02541)	(				

Cymbella cistula (Ehr.) Kirchn.

Bacillaria cistula Ehrenberg *in*: Ehrenberg and Hemprich, Symbolae physicae, Vol. 4, pl. 2(4), fig. 10. 1828.
Cymbella cistula (Ehr.) Kirchner *in*: Cohn, Kryptog.-Fl. Schlesien, Vol. 2, p. 189. 1878.

147 CBCISTUL TOT NO OF STATIONS 43

(46921	CH		23NO1945	0.00065)	(46917	CH		12JA1946	0.00055)	(46914	CH		19AP1946	0.00107)
(46920	CH		20DE1946	0.00092)	(46916	CH		4MY1947	0.00034)	(46906	CH		MY1947	0.00066)
(46919	CH		5JN1947	0.02580)	(46913	CH		6AU1947	0.02092)	(46922	CH		21AU1947	0.00097)
(46764	EV		17JL1937	0.01612)	(46757	EV		25JL1937	0.00963)	(46747	EV		1AU1937	0.00248)
(46765	EV		30AU1937	0.00558)	(1244	F 1		11JN1964	0.00219)	(1258	F 1		6JL1964	0.00472)
(1268	E 2		15AU1964	0.00274)	(1270	F 1		10AU1964	0.00272)	(1285	F 1		15SE1964	0.04077)
(1302	E 5		13DC1964	0.00405)	(1382	GS 6		10MY1967	0.00833)	(1386	GS1C		12MY1967	0.00287)
(1387	GS11		12MY1967	0.00792)	(1388	GS12		12MY1967	0.00603)	(1389	GS13		12MY1967	0.00258)
(1392	GS16		12MY1967	0.00616)	(1396	GS20		13MY1967	0.00074)	(1554	GS 1		3DC1967	0.00356)
(1557	GS 4		3DC1967	0.00374)	(1567	GS15		5DC1967	0.00159)	(1569	GS17		5DC1967	0.00446)
(1574	GS22		6DC1967	0.01438)	(1524	MI 1		20SE1967	0.02189)	(1529	RM 1		20SE1967	0.01159)
(1530	FR 1		24SE1967	0.02000)	(155C	MR 1		5DC1967	0.02478)	(1553	SG 1		6DC1967	0.01469)
(1426	MS 2		29MY1967	0.02100)	(1350	BH 2		19AP1967	0.00220)	(1403	CA 2		10MY1967	0.27462)
(1404	MC 2		10MY1967	0.02541)	(1405	ES 2		12MY1967	0.00645)	(1349	CI 2		19AP1967	0.00359)
(1406	GB 2		13MY1967	0.00270)	(									

Cymbella cistula var. *gibbosa* J. Brun

Cymbella cistula var. *gibbosa* J. Brun, Diatomiste, Vol. 2, pl. 14, fig. 27. 1895.

148 CBCISTVG TOT NO OF STATIONS 7

(1240	D 6		10JN1964	0.00153)	(1285	F 1		15SE1964	0.01165)	(1379	CS 3		9MY1967	0.00309)
(1387	GS11		12MY1967	0.01584)	(1566	GS14		5DC1967	0.00183)	(1526	MO 1		20SE1967	0.00569)
(1403	CA 2		10MY1967	0.28765)	(									

Cymbella cistula var. *truncata* J. Brun.

Cymbella cistula var. *truncata* J. Brun, Diat. Alps et Jura, p. 58, pl. 3, fig. 2. 1880.

149 CBCISTVT TOT NO OF STATIONS 1

(1403	CA 2	10MY1967	0.02615)	(

Cymbella cuspidata Kütz.

Cymbella cuspidata Kützing, Bacill., p. 79, pl. 3, fig. 40. 1844.

150 CBCUSPID TOT NO OF STATIONS 14

(46917	CH		12JA1946	0.00055)	(46914	CH		19AP1946	0.00107)	(46758	EV		5JN1937	0.00357)
(46764	EV		17JL1937	0.00806)	(46757	EV		25JL1937	0.00963)	(46747	EV		1AU1937	0.00248)
(46769	EV		7SE1937	0.02171)	(46751	EV		30NO1938	0.02233)	(46759	EV		19MY1938	0.00338)
(46761	EV		27MY1938	0.00273)	(1574	GS22		6DC1967	0.00575)	(1527	TR 1		20SE1967	0.00629)
(1427	LU 2		29MY1967	0.01211)	(1350	BH 2		19AP1967	0.00220)	(				

Cymbella cuspidata var. *schulzii* A. Cleve

Cymbella cuspidata var. *schulzii* A. Cleve, Soc. Sci. Fennica Comm. Biol., 4(14):75. 1934.

152 CBCUSPVS TCT NC CF STATICNS 1

(1392	GS16	12MY1967	0.00308)	(									

Cymbella delicatula Kützing

Cymbella delicatula Kützing, Sp. Alg., p. 59. 1849.

153 CBDELICA TCT NC OF STATICNS 41

(46914	CH	19AP1946	0.00107)	(46920	CH	20DE1946	C.00062)	(46916	CH	4MY1947	C.C2205)		
(46919	CH	5JN1947	1.28223)	(46927	CH	JL1947	C.00099)	(46922	CH	21AU1947	C.CC145)		
(46758	EV	5JN1937	0.0C713)	(46743	EV	20JN1937	0.00428)	(46770	EV	9JL1937	C.01193)		
(46764	EV	17JL1937	0.04835)	(46757	EV	25JL1937	C.02407)	(46747	EV	1AU1937	C.00248)		
(46763	EV	23AU1937	0.10146)	(46752	EV	15SE1937	0.06530)	(46748	EV	13OC1937	C.02135)		
(46768	EV	16MR1938	0.C147C)	(46762	EV	18MR1538	C.02206)	(1243	E 6	13JN1964	C.00209)		
(1244	F 1	11JN1964	0.00658)	(1258	F 1	6JL1964	0.00944)	(1259	F 2	6JL1964	C.00310)		
(1260	F 3	6JL1964	0.00764)	(127C	F 1	10AU1964	C.00272)	(1285	F 1	15SE1964	C.54743)		
(1304	F 1	11OC1964	0.00494)	(1305	F 2	11OC1964	0.00173)	(1379	GS 3	9MY1967	C.00309)		
(1384	GS 8	10MY1967	0.00185)	(1387	GS11	12MY1967	C.01980)	(1388	GS12	12MY1967	C.00603)		
(1389	GS13	12MY1967	0.01289)	(1390	GS14	12MY1967	0.00587)	(1391	GS15	12MY1967	C.00479)		
(1394	GS10	13MY1967	C.00172)	(1555	GS 2	3CC1967	C.00706)	(1574	GS22	6OC1967	C.00863)		
(1550	MR 1	5CC1967	0.01239)	(1350	BH 2	19AP1967	C.00220)	(1402	TR 2	6MY1967	C.00541)		
(1403	CA 2	10MY1967	0.23935)	(1405	ES 2	12MY1967	0.00645)	(					

Cymbella hebridica (Grun.) Cleve

Encyonema hebridicum Grunow *in*: Cleve and Möller, Diatoms, No. 37. 1877.
Cymbella hebridica (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Foljd, 26(2):169. 1895.

154 CBHEBRID TCT NC OF STATICNS 1

(3541	CH	1FE1881	0.00578)	(									

Cymbella hustedtii Krasske

Cymbella hustedtii Krasske, Bot. Arch., 3(4):204, fig. 11. 1923.

155 CBHUSTED TCT NC CF STATICNS 19

(46914	CH	19AP1946	0.00107)	(46919	CH	5JN1947	C.00607)	(46764	EV	17JL1937	C.01612)		
(46757	EV	25JL1937	0.0C481)	(46748	EV	13OC1937	0.02135)	(46767	EV	27OC1937	C.0C774)		
(46768	EV	16MR1938	0.C147C)	(1285	F 1	15SE1964	C.10483)	(1386	GS10	12MY1967	C.CC287)		
(1388	GS12	12MY1967	0.00603)	(1557	GS 4	30C1967	C.00374)	(1563	GS11	5OC1967	C.00234)		
(1565	GS13	5CC1967	0.01014)	(1569	GS17	5OC1967	0.00149)	(1574	GS22	6OC1967	C.0C288)		
(1527	TR 1	2CSE1967	0.0C625)	(1553	SG 1	6OC1967	0.00734)	(1403	CA 2	10MY1967	C.01308)		
(1404	PG 2	10MY1967	0.01270)	(									

Cymbella hybrida Grun.

Cymbella hybrida Grunow *ex* Cleve and Möller, Diatoms, No. 161. 1878.

156 CBHYBRID TCT NC CF STATICNS 4

(46921	CH	23NO1545	C.00065)	(46747	EV	1AU1537	C.0C248)	(46751	EV	30MR1938	C.C1117)		
(1268	E 2	15AU1564	0.00274)	(									

Cymbella inaequalis Ross

Cymbella inaequalis Ross, New Phytol., 51(3):381. 1952.

157 CBINAEQU TCT NC CF STATICNS 1

(1268	E 2	15AU1964	0.CC274)	(									

Cymbella incerta (Grun.) Cleve

Cymbella pisciculus var. *incerta* Grunow *in*: Cleve and Möller, Diatoms, No. 96. 1878.
Cymbella incerta (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):170. 1895.

158 CBINCERT TOT NO OF STATIONS 2

(1270	F 1	1CAU1964	0.00272)	(1388	GS12	12MY1967	C.02413)	(			

Cymbella laevis Naeg.

Cymbella laevis Naegeli *ex* Kützing, Sp. Alg., p. 58. 1849.

159 CBLAEVIS TOT NO OF STATIONS 3

146757	EV	25JL1937	C.0C481)	(1285	F 1	15SE1964	0.00582)	(1350	GS14	12MY1967	C.0C587)

Cymbella lanceolata (Ehr.) Kirchn.

Cocconema lanceolatum Ehrenberg, Infusionsthierchen, p. 224, pl. 19, fig. 6. 1838.
Cymbella lanceolata Kirchner *in*: Cohn, Kryptog.-Fl. Schlesien, Vol. 2, p. 188. 1878.

160 CBLANCEO TOT NO OF STATIONS 3

146751	EV	30MR1938	0.01117)	(1545	WL 1	20C1967	0.00676)	(1407	SM 2	14MY1967	C.00597)

161 CBLANCEO TOT NO OF STATIONS 1

(1285	F 1	15SE1964	0.00582)	(							

Cymbella lata Grun.

Cymbella lata Grunow *ex* Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):165, pl. 4, fig. 27. 1894.

162 CBLATA TOT NO OF STATIONS 2

146747	EV	14JU1937	C.0C248)	(1285	F 1	15SE1964	0.00582)	(			

Cymbella latens Krasske

Cymbella latens Krasske, Arch. Hydrobiol., 31:43, text fig. p. 53. 1937.

182 CBVENTRG TOT NO OF STATIONS 46

60973	GH	1876	0.04724)	146770	EV	9JL1937	0.01193)	146784	EV	17JL1937	0.04835)
146750	EV	24SE1937	0.0C943)	146768	EV	16MR1938	0.05880)	(1256	E 2	14JL1964	C.0C183)
(1258	F 1	6JL1964	0.C118C)	(1285	F 1	15SE1964	C.03494)	(13C8	C 7	6NC1964	0.00304)
(1316	D 6	9ND1964	0.0C378)	(1451	C 7	16JL1967	C.0C197)	(1453	E 3	15JL1967	C.0C253)
(1541	E 2	11OC1967	C.0C532)	(1543	E 5	10CC1967	0.00718)	(1384	CS 8	10MY1967	C.0C183)
(1387	GS11	12MY1967	0.22180)	(1388	GS12	12MY1967	C.C0603)	(1389	GS13	12MY1967	C.02063)
(1390	GS14	12MY1967	0.02349)	(1391	GS15	12MY1967	0.00479)	(1394	GS18	13MY1967	0.00172)
(1397	GS21	13MY1967	C.00065)	(1398	GS22	14MY1967	C.00607)	(1574	GS22	6DC1967	C.04315)
(1522	BH 1	18SE1967	0.00182)	(1523	MA 1	19SE1967	0.00923)	(1526	MO 1	20SE1967	0.01130)
(1528	SB 1	20SE1967	C.C1444)	(1529	RB 1	20SE1967	C.19187)	(1545	WL 1	20C1967	C.0C478)
(1549	MQ 1	4DC1967	0.01370)	(1550	MR 1	5DC1967	C.18585)	(1553	SC 1	6DC1967	C.00734)
(1428	MO 2	29MY1967	C.C0603)	(1426	MS 2	29MY1967	C.C3150)	(1427	LU 2	29MY1967	C.C3632)
(1417	MO 2	22MY1967	0.00374)	(1350	BH 2	19AP1967	C.05066)	(1399	PW 2	5MY1967	C.C0680)
(1401	MO 2	6MY1967	0.02352)	(1354	GH 2	25AP1967	0.00173)	(1429	WL 2	29MY1967	C.04247)
(1403	CA 2	10MY1967	1.21616)	(1404	MO 2	10MY1967	0.12703)	(1407	SM 2	14MY1967	C.C1791)
(1406	GB 2	13MY1967	0.00270)	(							

Cymbella leptoceros (Ehr.) Rabenh.

Cocconema leptoceros Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:123, pl. 1 (2), fig. 30. 1843.
Cymbella leptoceros (Ehr.) Rabenhorst, Süssw.-Diat., p. 22, pl. 7, fig. 14a. 1853.

163 CBLEPTOC TOT NO OF STATIONS 3

(1244	F 1	11JN1964	0.00110)	(1270	F 1	10AU1964	C.00817)	(1304	F 1	11DC1964	C.00247)

Cymbella leptoceros var. *rostrata* Hust.

Cymbella leptoceros var. *rostrata* Hustedt, Arch. Hydrobiol., 39:132, figs. 52-54. 1942.

164 CBLEPTVR TOT NO OF STATIONS 7

146748	EV	13DC1937	0.02135)	(1387	GS11	12MY1967	C.00396)	(1389	GS13	12MY1967	C.00258)
(1426	PS 2	29MY1967	0.01050)	(1350	BH 2	19AP1967	0.00220)	(1403	CA 2	10MY1967	C.01308)
(1407	SM 2	14MY1967	C.00597)	(							

Cymbella mexicana (Ehr.) Cleve

Cocconema mexicanum Ehrenberg, Ber. Akad. Wiss. Berlin, 1844:342. 1844.
Cymbella mexicana (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):177. 1894.

165 CBMEXICA TOT NO OF STATIONS 6

146920	CH	20DE1946	0.00031)	(1384	GS 8	10MY1967	0.00185)	(1530	PR 1	24SE1967	C.01000)
(1550	MR 1	5DC1967	0.01239)	(1402	TM 2	6MY1967	0.00541)	(1354	GM 2	29AP1967	C.00173)

Cymbella microcephala Grun.

Cymbella microcephala Grunow *in*: Van Heurck, Syn. Diat. Belgique, p. 63, pl. 8, figs. 36-39. 1885.

166 CBMICROC TOT NO OF STATIONS 64

140973	CH	1876	0.02382)	146510	CH	DC1945	0.00109)	146919	CH	5JN1967	C.02883)
146913	CH	6AU1967	C.01046)	146758	EV	5JN1937	0.00357)	146743	EV	20JN1937	C.00856)
146770	EV	5JL1937	C.00596)	146764	EV	17JL1937	C.00806)	146757	EV	25JL1937	C.01926)
146747	EV	1AU1937	C.00743)	146763	EV	23AU1937	0.30438)	146752	EV	15SE1937	C.08767)
146748	EV	13DC1937	0.06405)	146768	EV	10MR1938	C.05880)	146762	EV	18MR1938	C.04411)
146751	EV	30MR1938	0.01117)	(1256	E 2	14JL1964	0.00183)	(1258	F 1	6JL1964	C.01888)
(1259	F 2	6JL1964	0.00310)	(1260	F 3	6JL1964	C.00191)	(1268	E 2	15AU1964	C.00567)
(1269	E 3	15AU1964	0.00274)	(1270	F 1	10AU1964	C.02178)	(1279	E 1	16SE1964	C.01178)
(1284	E 6	17SE1964	0.00635)	(1285	F 1	15SE1964	0.59402)	(1287	F 3	15SE1964	C.00500)
(1297	D 6	14DC1964	0.00190)	(13C2	E 5	13DC1964	0.00405)	(1304	F 1	11DC1964	C.01482)
(1338	C 3	28MR1967	0.00132)	(1449	C 3	16JL1967	0.00382)	(1506	A 4	29AU1967	C.00523)
(1512	E 3	1SE1967	0.00393)	(1533	A 4	19SE1967	0.00464)	(1536	E 2	24SE1967	C.00273)
(1387	GS11	12MY1967	0.01584)	(1389	GS13	12MY1967	0.00258)	(1554	GS 1	3DC1967	C.00356)
(1555	GS 2	3DC1967	0.01766)	(1556	GS 3	3DC1967	0.00521)	(1558	GS 5	4DC1967	C.01189)
(1560	GS 8	4DC1967	0.00945)	(1565	GS13	5DC1967	C.01014)	(1566	GS14	5DC1967	C.00183)
(1567	GS15	5DC1967	0.00318)	(1569	GS17	5DC1967	C.00149)	(1574	GS22	6DC1967	C.01151)
(1575	GS28	6DC1967	0.00129)	(1546	LU 1	2DC1967	C.01000)	(1522	BH 1	18SE1967	C.00182)
(1523	RA 1	19SE1967	0.00923)	(1526	MO 1	20SE1967	0.00569)	(1528	SB 1	20SE1967	C.01444)
(1529	RM 1	20SE1967	0.19187)	(1549	MG 1	4DC1967	0.02741)	(1552	SM 1	6DC1967	0.00660)
(1550	MR 1	5DC1967	0.04956)	(1350	BH 2	19AP1967	0.00881)	(1402	TM 2	6MY1967	C.00541)
(1403	CA 2	10MY1967	0.20823)	(1404	MG 2	10MY1967	0.01270)	(1407	SM 2	14MY1967	C.01194)
(1423	WA 2	25MY1967	0.00428)	(							

Cymbella naviculaformis (Auersw.) Kirchn.

Cymbella cuspidata var. *naviculaformis* Auerswald *ex* Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 78. 1864.
Cymbella naviculaformis (Auersw.) Kirchner *in*: Cohn, Kryptog.-Fl. Schlesien, Vol. 2, p. 187. 1878.

168 CBNAVICU TCT NO OF STATIONS 10

146921	CH	23NO1945	0.00065	)	146517	CH	12JA1946	0.00028	)	146924	CH	10MY1946	0.00071	)
146905	CH	JA1947	0.00123	)	146909	CH	MR1947	0.00455	)	146916	CH	4MY1947	0.00034	)
146906	CH	MY1947	0.00066	)	146519	CH	5JN1947	0.00455	)	146922	CH	21AU1947	0.00048	)
146744	EV	60C1937	0.00488	)	(									

Cymbella norvegica Grun.

Cymbella norvegica Grunow *in*: A. Schmidt, Atlas Diat., pl. 10, fig. 41. 1875.

169 CBNORVEG TCT NO OF STATIONS 3

(1403	CA 2	10MY1967	C.C13C8	)	(									

Cymbella obtusiuscula Kütz.

Cymbella obtusiuscula Kützing, Bacill., p. 79, pl. 3, fig. 68. 1844.

170 CBOBTUSI TCT NO OF STATIONS 6

160973	CH	1876	0.02362	)	146758	EV	5JN1937	0.00357	)	(1393	GS17	13MY1967	C.0C274	)
(1567	GS15	50C1967	0.00318	)	(1520	MD 1	18SE1967	0.00471	)	(1405	ES 2	12MY1967	C.0C645	)

Cymbella parva (Wm. Smith) Cleve

Cocconema parvum Wm. Smith, Syn. British Diat., Vol. 1, p. 76, pl. 23, fig. 222. 1853.
Cymbella parva (Wm. Smith) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):172. 1894.

171 CBPARVA TCT NO OF STATIONS 9

160973	CH	1876	0.02362	)	(1256	E 2	14JL1964	C.00183	)	(1285	P 1	15SE1964	C.C1747	)
(1568	GW 1	20C1967	0.00500	)	(1403	CA 2	10MY1967	C.02015	)	(				

Cymbella parvula Krasske

Cymbella parvula Krasske, Zeitschr. Geschiebeforsch., 9(2):92, pl. 2, fig. 3. 1933.

172 CBPARVUL TCT NO OF STATIONS 8

146758	EV	5JN1937	0.00357	)	(1258	P 1	6JL1964	0.00236	)	(1352	GS16	12MY1967	C.0C3C8	)
(1565	GS13	50C1967	0.01521	)	(1574	GS22	60C1967	0.00288	)	(1553	SG 1	60C1967	C.00734	)
(1404	MD 2	10MY1967	0.02541	)	(1407	SM 2	14MY1967	C.0C597	)	(				

Cymbella prostrata (Berk.) Cleve

Monema prostratum Berkeley, Gleanings British Alg., pl. 4, fig. 3. 1832.
Cymbella prostrata (Berk.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2): 167. 1894.

173 CBPROSTR TCT NO OF STATIONS 80

146921	CH	23NO1945	0.00129	)	146517	CH	12JA1946	0.00083	)	146915	CH	20FE1946	0.0C569	)
146924	CH	10MY1946	0.00071	)	146923	CH	22NO1946	0.00437	)	146920	CH	20DE1946	0.00031	)
146916	CH	4MY1947	0.00034	)	146506	CH	MY1947	0.00066	)	146919	CH	5JN1947	C.03463	)
146922	CH	21AU1947	0.00291	)	146758	EV	5JN1937	0.01428	)	146764	EV	17JL1937	C.0C806	)
146757	EV	25JL1937	0.00962	)	146747	EV	1AU1937	C.00495	)	146763	EV	23AU1937	C.02029	)
146765	EV	30AU1937	0.CC550	)	146752	EV	15SE1937	C.13061	)	146748	EV	13OC1937	C.1201C	)
146745	EV	12MR1938	0.03641	)	146768	EV	16MR1938	C.C1470	)	146762	EV	18MR1938	C.06617	)
146766	EV	14DE1938	0.01586	)	(1243	E 6	13JN1964	0.00418	)	(1245	F 2	11JN1964	0.00346	)
(1265	C* 2	10AU1964	0.00224	)	(1270	F 1	10AU1964	0.00272	)	(1279	E 1	16SE1964	0.00393	)
(1285	P 1	15SE1964	0.01165	)	(1343	A 6	19AP1967	0.00208	)	(1345	C 5	25AP1967	C.0C195	)
(1369	A 5	4MY1967	0.CC745	)	(1375	E 3	7MY1967	0.00241	)	(1410	E 5	28MY1967	C.0C219	)
(1504	A 3	28AU1967	0.00247	)	(1512	E 3	15SE1967	C.00393	)	(1536	E 2	24SE1967	C.01091	)
(1538	E 5	23SE1967	C.29277	)	(1386	GS10	12PY1967	0.00287	)	(1387	GS11	12PY1967	C.CC752	)
(1394	GS18	13MY1967	0.00172	)	(1395	GS19	13MY1967	0.00117	)	(1396	GS20	13MY1967	C.0C074	)
(1397	GS21	13MY1967	0.00392	)	(1554	GS 1	30C1967	0.00356	)	(1555	GS 2	30C1967	C.0C353	)
(1556	GS 3	30C1967	0.01043	)	(1557	GS 4	30C1967	C.00747	)	(1563	GS11	50C1967	C.0C234	)
(1567	GS15	50C1967	C.00635	)	(1568	GS16	50C1967	C.00144	)	(1569	GS17	50C1967	C.0C149	)

(1573	GS21	6OC1967	0.00336)	(1574	GS22	6OC1967	0.03739)	(1544	PU 1	2OC1967	C.CC238)
(1547	MS 1	2OC1967	0.00798)	(1524	MI 1	2OSE1967	0.13135)	(1546	LU 1	2OC1967	C.C6502)
(1521	SM 1	18SE1967	0.00577)	(1523	RA 1	19SE1967	0.02768)	(1525	PM 1	2OSE1967	C.C8355)
(1526	MO 1	2OSE1967	0.04258)	(1527	TR 1	2OSE1967	0.04289)	(1528	SB 1	2OSE1967	C.C2888)
(1529	KM 1	2OSE1967	2.68617)	(1530	FR 1	24SE1967	C.16002)	(1545	NL 1	2OC1967	C.CC674)
(1548	CA 1	3OC1967	0.05088)	(1552	SM 1	6OC1967	0.01321)	(1550	PR 1	5OC1967	C.07434)
(1553	SG 1	6CC1967	0.01469)	(1428	MU 2	29MY1967	0.00301)	(1426	PS 2	29MY1967	C.03150)
(1427	LU 2	29MY1967	0.01211)	(1350	BH 2	19AP1967	0.00441)	(1401	PO 2	6MY1967	C.00588)
(1402	TR 2	6MY1967	0.01624)	(1403	CA 2	10MY1967	0.06539)	(1407	SM 2	14MY1967	C.04180)
(1349	CI 2	19AP1967	0.CC359)	(1406	GB 2	13MY1967	0.00270)	(			

Cymbella rugosa Hust.

Cymbella rugosa Hustedt, Abh. Naturw. Ver. Bremen, 34(1):67, figs. 29-31. 1955.

174 CBTURCID TOT NO OF STATIONS 3													
(3541	CH	1FE1881	0.00578)	(1244	F 1	11JN1964	C.00110)	(1270	F 1	10AU1964	C.CC272)

Cymbella sinuata Greg.

Cymbella sinuata Gregory, Quart. J. Micr. Sci., 4:4, pl. 1, fig. 17. 1856.

175 CBSINUAT TOT NO OF STATIONS 30													
(3540	CH	11MY1879	0.00466)	146758	EV	5JN1937	C.CC357)	146764	EV	17JL1937	C.CC806)
146763	EV	23AU1937	C.02029)	146748	EV	13OC1937	0.02135)	(1256	E 2	14JL1964	C.CC183)
(1258	F 1	6JL1964	0.00472)	(1263	C 7	15AU1964	C.00400)	(1275	D 2	17SE1964	C.CC645)
(1285	F 1	15SE1964	0.00582)	(1372	C 5	5MY1967	0.00355)	(1375	E 3	7MY1967	C.CC241)
(1394	GS18	13MY1967	C.CC172)	(1567	GS15	5OC1967	C.00635)	(1568	GS16	5CC1967	C.CC144)
(1569	GS17	5OC1967	0.00149)	(1571	GS19	6OC1967	C.00059)	(1572	GS20	6OC1967	C.CC090)
(1573	GS21	6OC1967	0.00112)	(1574	GS22	6OC1967	C.00863)	(1575	GS28	6CC1967	C.CC129)
(1546	LU 1	2OC1967	0.00500)	(1526	MC 1	2OSE1967	0.01138)	(1527	TR 1	2OSE1967	C.CC629)
(1551	ES 1	5OC1967	0.00799)	(1550	PR 1	5OC1967	C.26019)	(1426	PS 2	29MY1967	C.C1050)
(1417	MO 2	22MY1967	0.00374)	(1350	BH 2	19AP1967	0.01762)	(1401	PO 2	6MY1967	C.00588)

Cymbella sinuata fo. *ovata* Hust.

Cymbella sinuata fo. *ovata* Hustedt, Internat. Rev. Hydrobiol., 10:236. 1922.

176 CBSINUFO TOT NO OF STATIONS 1				
(1350	BH 2	19AP1967	0.00220)	(

Cymbella sinuata var. *antiqua* (Grun.) Cleve

Cymbella abyormis var. *antiqua* Grunow *in*: Mojsisovics and Neumayer, Beitr. Palaeontol. Osterreich-Ungarns, Bd. 2, Heft 4, p. 141, pl. 29, fig. 31. 1882.

Coll: 1105.

Cymbella triangulata (Ehr.) Cleve

Gloeonema triangulatum Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:77. 1846.
Cymbella triangulata (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):168. 1894.

177 CBTRIANG TOT NO OF STATIONS 36													
(3540	CH	11MY1879	0.00466)	(3541	CH	1FE1881	C.03913)	146921	CH	23ND1945	C.00323)
146915	CH	20FE1946	0.01707)	146523	CH	22ND1946	0.02841)	146920	CH	20DE1946	0.00123)
146905	CH	JA1947	0.00123)	146509	CH	MR1947	0.01366)	146906	CH	MY1947	C.CC066)
146907	CH	JL1947	0.00049)	146522	CH	21AU1947	0.00533)	(1247	B 3	14JL1964	C.00427)
(1259	F 2	6JL1964	0.00310)	(1275	D 2	17SE1964	0.00645)	(1284	E 6	17SE1964	0.01589)
(1285	F 1	15SE1964	0.01747)	(1302	E 5	13OC1964	0.00405)	(1304	F 1	11OC1964	C.CC741)
(1322	E 6	7ND1964	0.00333)	(1323	F 1	6ND1964	0.00279)	(1324	F 2	6ND1964	0.00233)
(1388	GS12	12MY1967	0.01810)	(1390	GS14	12MY1967	0.00587)	(1557	GS 4	3DC1967	C.0C374)

(1558	GS 5	4CC1967	0.00396)	(1562	GS1C	5OC1967	0.00247)	(1563	GS11	5OC1967	C.CC234)
(1564	GS12	5OC1967	0.00494)	(1566	GS14	5OC1967	0.00183)	(1567	GS15	5OC1967	C.02382)
(1568	GS16	5OC1967	0.00433)	(1569	GS17	5OC1967	C.01635)	(1570	GS18	5OC1967	C.OC992)
(1548	CA 1	3OC1967	0.03816)	(1551	ES 1	5CC1967	0.00799)	(1421	CH 2	23MY1967	C.01735)

Cymbella tumida (Bréb.) V. H.

Cocconema tumida de Brébisson *ex* Kützing, Sp. Alg., p. 60. 1849.
Cymbella tumida (Bréb.) Van Heurck, Syn. Diat. Belgique, p. 64, pl. 2, fig. 10. 1885.

178 CBTUPIDA TCT NC CF STATICNS 1

(1544	PU 1	2CC1967	C.OC477)	(	

Cymbella turgida Greg.

Cymbella turgida Gregory, Quart. J. Micr. Sci., 4:5, pl. 1, fig. 18. 1856.

180 CBTURGVP TCT NC CF STATICNS 2

(1387	GS11	12MY1967	0.01188)	(1389	GS13	12MY1967	C.CC258) (

Cymbella turgidula Grun.

Cymbella turgidula Grunow *in*: A. Schmidt, Atlas Diat., pl. 9, figs. 23-26. 1875.

Coll: 1244.

Cymbella ventricosa Agardh

Cymbella ventricosa Agardh, Consp. Crit. Diat., part 1, p. 9. 1830.

181 CBVENTRI TCT NC CF STATICNS 42

(46921	CH	23NO1945	C.CCC65)	(46924	CH	10MY1946	0.00282)	(46919	CH	5JN1947	C.CC152)
(46922	CH	21AU1947	0.00097)	(46758	EV	5JN1937	C.05706)	(46743	EV	20JN1937	C.OC428)
(46770	EV	9JL1937	C.CC59e)	(46764	EV	17JL1937	C.00806)	(46757	EV	25JL1937	C.C1444)
(46747	EV	1AU1537	0.00990)	(46763	EV	23AU1937	C.10146)	(46765	EV	30AU1937	C.CC558)
(46752	EV	15SE1937	C.13061)	(46760	EV	22SE1937	C.00985)	(46750	EV	24SE1937	C.OC471)
(46748	EV	13CC1937	C.02135)	(46767	EV	27CC1937	0.00387)	(46749	EV	12MR1938	C.C2427)
(46762	EV	18MR1938	0.06617)	(1232	E 5	16MY1964	C.00522)	(1240	D 6	10JN1964	C.CC460)
(1243	E 6	13JN1964	C.01253)	(1244	F 1	11JN1964	C.00548)	(1279	E 1	16SE1964	C.CC393)
(1377	GS 1	5MY1967	0.00396)	(1378	GS 2	9MY1967	C.00421)	(1392	CS16	12MY1967	C.CC308)
(1394	GS18	13MY1967	0.00516)	(1559	GS 7	40C1967	C.C0350)	(1565	CS13	5OC1967	C.CC507)
(1567	CS15	5OC1967	0.00318)	(1565	GS17	5OC1967	0.00149)	(1571	CS19	6OC1967	C.CC176)
(1575	CS28	6OC1967	C.00129)	(1547	MS 1	20C1967	C.01597)	(1546	LU 1	2CC1967	C.C2001)
(1522	BM 1	18SE1967	0.00547)	(1527	TR 1	2CSE1967	0.03774)	(1530	FR 1	24SE1967	C.03000)
(1426	MS 2	29MY1967	C.01050)	(1402	TR 2	6MY1967	C.01083)	(1405	ES 2	12MY1967	C.CC645)

Species *incertae sedis*

Cymbella sp. (aff. *C. cuspidata* var.?).

151 CBCUSPVC TCT NC CF STATICNS 8

(46758	EV	5JN1937	0.01426)	(46757	EV	25JL1537	0.00963)	(46747	EV	1AU1937	C.01485)
(46763	EV	23AU1937	0.02029)	(46762	EV	18MR1938	0.02206)	(1545	WL 1	20C1967	C.OC676)
(1354	CH 2	25AP1967	0.00173)	(1404	MC 2	10MY1967	C.02541)	(			

Cymbella sp. (aff. *C. pusilla*).

174 CBPUSILC TCT NC CF STATICNS 10

(46915	CH	5JN1947	0.00303)	(46764	EV	17JL1937	C.02417)	(46747	EV	1AU1537	C.CC495)
(46763	EV	23AU1937	C.02029)	(1242	E 3	13JN1964	C.00150)	(1270	F 1	10AU1964	C.CC545)
(1285	F 1	15SE1964	0.04077)	(1375	E 3	7MY1967	C.00241)	(1566	CS14	5CC1967	C.OC183)
(1404	MC 2	10MY1967	C.01270)	(							

Cymbella sp. #4.

184 CBSPECDD TOT NO OF STATIONS 7

I46752	EV	15SE1937	0.02177	I	I46750	EV	24SE1937	C.00471	I	I46748	EV	13OC1937	C.02135	I
I46768	EV	16MR1938	0.01470	I	I46751	EV	30MR1938	1.21706	I	I 1284	E 6	17SE1964	C.00318	I
I 1445	B 6	14OC1964	0.00324	I	I									

Cymbella sp. #6.

186 CBSPECDF TOT NO OF STATIONS 11

I46919	CH	5JN1947	0.00152	I	I46758	EV	5JN1937	C.01070	I	I46770	EV	9JL1937	C.00596	I
I46784	EV	17JL1937	0.04835	I	I46747	EV	18AU1937	0.00248	I	I46752	EV	15SE1937	C.02177	I
I46744	EV	6OC1937	0.00975	I	I46767	EV	27OC1937	0.00387	I	I46759	EV	19PY1938	C.00338	I
I 1565	GS13	9CC1967	0.02028	I	I 1405	ES 2	12MY1967	0.00405	I	I				

Cymbella sp. #7.

187 CBSPECDG TOT NO OF STATIONS 4

I46770	EV	9JL1937	0.01785	I	I46784	EV	17JL1937	C.04835	I	I46757	EV	25JL1937	C.02370	I
I46768	EV	16PR1938	0.01470	I	I									

Cymbella sp. #8.

189 CBSPECDH TOT NO OF STATIONS 1

I46784	EV	17JL1937	C.01612	I

Cymbella sp. #9.

189 CBSPECDI TOT NO OF STATIONS 1

I46770	EV	9JL1937	C.00596	I

Cymbella sp. #10.

190 CBSPECDJ TOT NO OF STATIONS 1

I 1394	GS18	13MY1967	0.00172	I

Cymbella sp. #11.

191 CBSPECDK TOT NO OF STATIONS 1

I 1398	GS22	14MY1967	0.00304	I

Cymbella sp. #12.

192 CBSPECDL TOT NO OF STATIONS 1

I 1565	GS13	9CC1967	0.00507	I

Cymbella sp. #13.

193 CBSPECDM TOT NO OF STATIONS 1

I 1567	GS15	9OC1967	0.00156	I

Cymbella sp. #14.

194 CRSPECON TCT NC CF STATICNS 1

I 1573	GS21	6CC1967	0.CC112	I	

Genus *Cymbellonitzschia* Hust.
Hustedt *in*: A. Schmidt, Atlas Diat., pl. 352, figs. 12-13. 1924.

Members of the genus *Cymbellonitzschia* usually comprise a minor portion of the flora. Scattered reports of its occurrence indicate that it finds its primary habitat in periphyton and epipelic communities. The only species found in Lake Michigan is most abundant in epipelic communities in relatively deep water. Only isolated accidental occurrences are noted in plankton collections.

Cymbellonitzschia diluviana Hust.

Cymbellonitzschia diluviana Hustedt, Abh. Naturw. Verein Bremen 33(3):453, fig. 23-24. 1954.

195 CADILEUV TCT NC CF STATICNS 3

I 1550	MR 1	5CC1967	0.02478	I	I 1417	HC 2	22MY1967	0.00374	I	I 1350	BH 2	19AP1967	C.CC220	I

Genus *Denticula* Ehr.
Ehrenberg, Infusionsthierschen, p. 207. 1838.

Most freshwater members of the genus *Denticula* are most abundant in communities growing on solid surfaces. This is true of the single representative that occurs in our collections. It is, however, apparently a successful facultative planktont as it is noted in moderate abundance in many plankton collections from Lake Michigan, especially in nearshore collections.

Denticula tenuis var. *crassula* (Naeg.) Hust.

Denticula crassula Naegeli *ex* Kützing, Sp. Alg., p. 889. 1849.
Denticula tenuis var. *crassula* (Naeg.) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 381, fig. 724. 1930.

196 DETENUVC TCT NC CF STATIONS 98

160973	CH		1876	0.02362	146921	CH		23NO1945	C.00065	146914	CH		19AP1946	C.CC107
146920	CH		20DE1946	0.00031	146916	CH		4MY1947	C.00034	146906	CH		MY1947	C.CC066
146919	CH		5JN1947	0.00303	146907	CH		JL1947	C.00049	146758	EV		5JN1937	C.0C357
146784	EV		17JL1937	0.01612	146763	EV		23AU1937	C.04058	146752	EV		15SE1937	C.C6530
146748	EV		13OC1937	0.04270	146767	EV		27DC1937	0.00774	146762	EV		18MR1938	C.C2206
1240	D 6		10JN1964	0.00153	1243	E 6		13JN1964	0.01253	1244	F 1		11JN1964	C.00877
1254	D 2		15JL1964	0.00192	1256	E 2		14JL1964	0.00183	1258	F 1		6JL1964	C.17462
1259	F 2		6JL1964	0.00930	1260	F 3		6JL1964	0.01528	1267	D 6		18AU1964	C.0C432
1268	E 2		15AU1964	0.12310	1270	F 1		10AU1964	C.05718	1444	B 6		19SE1964	C.00303
1278	D 6		18SE1964	0.00384	1279	E 1		16SE1964	C.05497	1284	E 6		17SE1964	C.02224
1285	F 1		15SE1964	0.01533	1286	F 2		15SE1964	C.01095	1287	F 3		15SE1964	C.CC500
1299	E 2		12DC1964	0.00314	1301	E 4		13DC1964	C.00442	1302	E 5		13DC1964	C.00405
1304	F 1		11CC1964	0.03457	1305	F 2		11CC1964	C.00690	1306	F 3		11DC1964	C.00554
1322	E 6		7NO1964	0.00333	1323	F 1		6NO1964	0.00139	1340	C 7		28MR1967	C.0C145
1346	C 7		21AP1967	0.00134	1374	E 2		7MY1967	C.00299	1449	C 3		16JL1967	C.00382
1452	E 2		14JL1967	0.01918	1512	E 3		15E1967	C.00393	1533	A 4		19SE1967	C.00464
1534	A 6		19SE1967	0.00310	1536	E 2		24SE1967	C.01363	1537	E 3		24SE1967	C.0C431
1538	E 5		23SE1967	0.02762	1541	E 2		11OC1967	C.00532	1542	E 3		11OC1967	C.01526
1543	E 5		10CC1967	0.00718	1380	GS 4		9PY1967	C.00336	1381	GS 5		10MY1967	C.0C239
1382	GS 6		10MY1967	0.00555	1384	GS 8		10PY1967	C.00555	1386	GS10		12MY1967	C.00287
1387	GS11		12MY1967	C.20596	1389	GS13		12MY1967	C.01805	1394	GS18		13MY1967	C.CC516
1398	GS22		14MY1967	0.00911	1554	GS 1		30C1967	C.02846	1555	GS 2		30C1967	C.02472
1556	GS 3		30C1967	0.01564	1557	GS 4		30C1967	C.02242	1558	GS 5		40C1967	C.03171
1559	GS 7		4DC1967	C.01049	1561	GS 9		4CC1967	0.00587	1562	GS10		5DC1967	C.00493
1563	GS11		9DC1967	0.00468	1564	GS12		5DC1967	C.00165	1565	GS13		9DC1967	C.01521
1566	GS14		5DC1967	0.00183	1567	GS15		5DC1967	0.00314	1568	GS16		9DC1967	C.00144
1569	GS17		5DC1967	0.00145	1574	GS22		6CC1967	C.17834	1547	PS 1		2CC1967	C.02395
1546	LU 1		20C1967	0.02501	1526	MC 1		20SE1967	0.05689	1527	TR 1		20SE1967	C.08176
1529	KW 1		2CSE1967	0.57561	1530	PR 1		24SE1967	C.32003	1545	BL 1		20C1967	C.CC676
1549	MQ 1		4DC1967	0.06852	1551	ES 1		5CC1967	C.02396	1552	SP 1		6DC1967	C.0C943
1550	MR 1		5DC1967	0.01239	1553	SG 1		6DC1967	0.02203	1401	MO 2		6MY1967	C.01764
1402	TP 2		4MY1967	C.02166	1352	MW 2		21AP1967	0.02577	1403	CA 2		30MY1967	C.02770
1404	MQ 2		10MY1967	0.01270	1407	SM 2		14MY1967	0.17317					

Genus *Diatoma* Bory (nom. cons. non Loureiro 1790)
Bory, Dict. Class. Hist. Nat., 5:461. 1824.

Of the members of the genus *Diatoma* occurring in Lake Michigan, only *D. tenue* var. *elongata* and *D. tenue* var. *pachycephala* are abundant in offshore plankton collections. Both of these entities are erratic in occurence but tend to be most abundant in areas that are appreciably eutrophied. During peak bloom years they are taken in collections from the entire basin.

Diatoma ehrenbergii Kütz.

Diatoma ehrenbergii Kützing, Bacill., p. 48, pl. 17, fig. 17(1-3). 1844.

197 DIEHBRNB TCT NC CF STATIONS 40

146921	CH		23NO1945	C.00065	146524	CH		10PY1946	0.00141	146923	CH		22NO1946	C.CC219
146920	CH		20DE1946	C.CCC92	146916	CH		4MY1947	0.00170	146906	CH		MY1947	C.CC066
146919	CH		5JN1947	2.41574	146907	CH		JL1947	C.00049	146922	CH		21AU1947	C.0CC97
146748	EV		4JN1937	1.49775	146771	EV		11JN1937	0.00238	146770	EV		9JL1937	C.0C596

146764	EV	17JL1937	0.00806	146757	EV	29JL1937	0.00481	146767	EV	27OC1937	0.00387
146756	EV	27AP1938	0.00168	146761	EV	27MY1938	0.00273	1226	C 7	16MY1964	0.00381
1345	C 5	25AP1967	0.00780	1346	C 7	21AP1967	0.00267	1348	E 5	23AP1967	0.00822
1449	C 3	16JL1967	0.00764	1395	GS19	13MY1967	0.00587	1397	GS21	13MY1967	0.01112
1398	GS22	14MY1967	0.00607	1572	GS20	6OC1967	0.00090	1574	GS22	6OC1967	0.00288
1546	LU 1	20C1967	0.02001	1530	FR 1	24SE1967	0.01000	1552	SM 1	6OC1967	0.00660
1550	MR 1	5OC1967	0.03717	1426	MS 2	29MY1967	0.20997	1427	LU 2	29MY1967	0.01211
1417	MO 2	22MY1967	0.09346	1418	SM 2	22MY1967	0.04666	1401	MO 2	6MY1967	0.00588
1354	GH 2	25AP1967	0.01208	1429	WL 2	29MY1967	0.04247	1407	SM 2	14MY1967	0.19108
1423	WA 2	25MY1967	0.00856								

204 DIVULGVG TOT NO OF STATIONS 1

1340	C 7	28MR1967	0.00800

Diatoma hiemale var. *mesodon* (Ehr.) Grun.

Fragilaria mesodon Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1838:57, pl. 2(1), fig. 9. 1839.
Diatoma hiemale var. *mesodon* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 51, figs. 3-4. 1881.

198 DIHIEPVM TOT NO OF STATIONS 2

146758	EV	5JN1937	0.00357	1341	A 3	19AP1967	0.00108

Diatoma tenue Agardh

Diatoma tenue Argardh, Svenska Bot., Vol. 7, pl. 491, figs. 4-5. 1812.

195 DITENUE TOT NO OF STATIONS 58

146924	CH	10MY1946	0.01411	146909	CH	MR1947	0.02277	146912	CH	AP1947	0.01150
146771	EV	11JN1937	0.01189	146749	EV	12MR1938	0.03641	146761	EV	27MY1938	0.00273
146766	EV	14DE1938	0.06337	1230	E 2	16MY1964	0.00296	1439	B 6	5JN1964	0.00200
1239	D 4	11JN1964	0.00116	1240	D 6	10JN1964	0.00153	1241	E 2	13JN1964	0.00296
1244	F 1	11JN1964	0.00329	1440	B 6	11JL1964	0.00737	1264	C* 1	10AU1964	0.00193
1265	C* 2	10AU1964	0.01118	1268	E 2	15AU1964	0.00274	1269	E 3	15AU1964	0.00548
1302	E 5	13DC1964	0.00405	1337	C 3	2MR1967	0.68490	1338	C 3	28MR1967	0.25520
1340	C 7	28MR1967	0.06617	1431	A 3	12JN1967	0.00257	1432	A 4	13JN1967	0.00511
1433	C 3	17JN1967	0.03875	1435	C 7	13JN1967	0.00631	1446	A 3	11JL1967	0.00489
1449	C 3	16JL1967	0.00764	1451	C 7	16JL1967	0.08267	1452	E 2	14JL1967	0.00426
1454	E 5	15JL1967	0.00200	1536	E 2	24SE1967	0.01363	1395	GS19	13MY1967	0.00235
1396	GS20	13MY1967	0.01036	1397	GS21	13MY1967	0.41205	1398	GS22	14MY1967	0.00304
1554	GS 1	3OC1967	0.01067	1555	GS 2	3OC1967	0.00353	1544	PU 1	20C1967	0.01191
1522	BH 1	18SE1967	0.00365	1550	MR 1	5OC1967	0.02478	1428	PU 2	29MY1967	1.39805
1426	MS 2	29MY1967	0.16798	1351	MI 2	21AP1967	0.17688	1417	MO 2	22MY1967	0.07103
1350	BH 2	19AP1967	0.63435	1425	RA 2	25MY1967	0.01768	1399	PW 2	5MY1967	0.00680
1352	KW 2	21AP1967	0.00859	1353	FR 2	23AP1967	0.09494	1354	GH 2	25AP1967	1.40847
1429	WL 2	29MY1967	0.03185	1405	ES 2	12MY1967	0.00645	1407	SM 2	14MY1967	0.50158
1408	GB 2	13MY1967	0.00809	1421	CH 2	23MY1967	0.06940	1422	GA 2	23MY1967	0.03576
1423	WA 2	25MY1967	0.03426								

Diatoma tenue var. *elongatum* Lyngb.

Diatoma tenue var. *elongatum* Lyngbye, Tent. Hydrophyt. Danicae, p. 179, pl. 61, figs. E 1-2. 1819.

200 DITENUVE TOT NO OF STATIONS 283

146910	CH	DC1945	1.63302	146921	CH	23ND1945	15.99441	146968	CH	DE1945	25.19637
146917	CH	12JA1946	36.27555	146515	CH	20FE1946	28.11130	146914	CH	19AP1946	11.75887
146924	CH	10MY1946	5.57170	146523	CH	22NO1946	1.70477	146920	CH	20DE1946	3.28436
146905	CH	JA1947	3.02733	146509	CH	FR1947	14.64869	146912	CH	AP1947	0.35094
146916	CH	4MY1947	27.78786	146506	CH	MY1947	18.37766	146919	CH	5JN1947	18.09836
146907	CH	JL1947	7.17972	146513	CH	6AU1947	0.84719	146922	CH	21AU1947	2.23663
146758	EV	5JN1937	2.09685	146771	EV	11JN1937	1.19823	146743	EV	20JN1937	0.14987
146745	EV	3JL1937	0.02090	146770	EV	9JL1937	0.01789	146764	EV	17JL1937	0.03223
146757	EV	25JL1937	0.18295	146747	EV	1AU1937	0.02723	146763	EV	23AU1937	0.06088
146765	EV	30AU1937	0.03904	146752	EV	15SE1937	0.10884	146760	EV	22SE1937	0.03939
146750	EV	24SE1937	0.02828	146744	EV	6OC1937	2.18494	146748	EV	13OC1937	0.02135
146767	EV	27CC1937	0.05802	146749	EV	12MR1938	0.52191	146768	EV	14MR1938	0.16169
146762	EV	18MR1938	0.08822	146751	EV	30MR1938	1.25056	146772	EV	18AP1938	0.45681
146756	EV	27AP1938	7.42818	146759	EV	19MY1938	0.69548	146761	EV	27MY1938	0.33522

(46766	EV	14DE1938	7.98479)	(1223	B 3	18MY1964	0.02344)	(1224	B 4	18MY1964	0.01568)
(1225	C 6	15MY1964	0.20776)	(1226	C 7	16MY1964	0.06849)	(1227	C' 2	13MY1964	0.00219)
(1228	D 2	14MY1964	0.00584)	(1229	D 5	14MY1964	0.00634)	(1230	E 2	16MY1964	0.05334)
(1233	B 3	5JN2964	0.15241)	(1234	B 3	18JN1964	0.23336)	(1235	C 7	16JN1964	0.17793)
(1439	B 6	5JN1964	0.12787)	(1236	C' 1	8JN1964	1.71533)	(1237	C' 2	8JN1964	0.27842)
(1240	D 6	10JN1964	0.17180)	(1241	E 2	13JN1964	0.25875)	(1242	E 3	13JN1964	0.00450)
(1243	E 6	13JN1964	0.21298)	(1244	F 1	11JN1964	0.04934)	(1245	F 2	11JN1964	0.01729)
(1247	B 3	14JL1964	0.29880)	(1248	B 3	24JL1964	0.03547)	(1440	B 6	11JL1964	0.06265)
(1441	B 6	24JL1964	0.01542)	(1249	C 3	8JL1964	1.14068)	(1250	C 6	10JL1964	0.06166)
(1251	C 7	16JL1964	0.13037)	(1252	C' 1	16JL1964	1.07392)	(1253	C' 2	16JL1964	0.63904)
(1254	D 2	15JL1964	0.67037)	(1255	D 5	15JL1964	0.08726)	(1256	E 2	14JL1964	0.23265)
(1257	E 3	14JL1964	0.03589)	(1258	F 1	6JL1964	0.66074)	(1259	F 2	6JL1964	0.15493)
(1260	F 3	6JL1964	0.13370)	(1261	B 3	2AU1964	0.00196)	(1262	B 3	17AU1964	0.00210)
(1442	B 6	2AU1964	0.01706)	(1264	C' 1	10AU1964	0.07337)	(1265	C' 2	10AU1964	0.13189)
(1266	D 3	18AU1964	0.67700)	(1267	D 6	18AU1964	0.16645)	(1268	E 2	15AU1964	0.67020)
(1269	E 3	15AU1964	0.02467)	(1270	F 1	10AU1964	0.17155)	(1444	B 6	19SE1964	0.00606)
(1271	C 7	22SE1964	0.22198)	(1272	C' 1	10SE1964	0.00821)	(1273	C' 2	10SE1964	0.01075)
(1274	D 1	17SE1964	0.04223)	(1275	D 2	17SE1964	0.01935)	(1276	D 3	18SE1964	0.03353)
(1277	D 4	18SE1964	0.03718)	(1278	D 6	18SE1964	0.02690)	(1279	E 1	16SE1964	0.01178)
(1280	E 2	16SE1964	0.04085)	(1281	E 3	16SE1964	0.02355)	(1282	E 4	16SE1964	0.03324)
(1283	E 5	16SE1964	0.03065)	(1284	E 6	17SE1964	0.40352)	(1287	F 3	15SE1964	0.01001)
(1288	B 3	15OC1964	0.00435)	(1445	E 6	14OC1964	0.00578)	(1289	C 7	14CC1964	0.07475)
(1290	C' 1	16CC1964	0.01516)	(1291	C' 2	16CC1964	0.00734)	(1293	D 2	15OC1964	0.01415)
(1294	D 3	15OC1964	0.01648)	(1295	D 4	15CC1964	0.01189)	(1296	D 5	14OC1964	0.01574)
(1297	D 6	14OC1964	0.26655)	(1299	E 1	12CC1964	0.00269)	(1299	E 2	12CC1964	0.01571)
(1300	E 3	13CC1964	0.02148)	(1301	E 4	13CC1964	0.01766)	(1302	E 5	13CC1964	0.14576)
(1303	E 6	13CC1964	1.37132)	(1306	F 3	11GC1964	0.00277)	(1307	B 6	NC1964	0.5C512)
(1308	C 7	6ND1964	0.13687)	(1309	C' 1	10NC1964	0.02251)	(1310	C' 2	10NC1964	0.00227)
(1311	D 1	8ND1964	0.00516)	(1312	D 2	8ND1964	0.00621)	(1313	D 3	9NC1964	0.01158)
(1314	D 4	9ND1964	0.01435)	(1315	D 5	9ND1964	0.02730)	(1316	D 6	9NC1964	0.37020)
(1317	E 1	6ND1964	0.00382)	(1318	E 2	7ND1964	0.01332)	(1319	E 3	7ND1964	0.01047)
(1320	E 4	7ND1964	0.01034)	(1321	E 5	7ND1964	0.02873)	(1322	E 6	7NC1964	0.46656)
(1323	F 1	6ND1964	0.00139)	(1336	C 3	27JA1967	0.01348)	(1337	C 3	2MR1967	1.13170)
(1338	C 3	28MR1967	0.90129)	(1339	C 5	28MR1967	0.15589)	(1340	C 7	28MR1967	1.06894)
(1341	A 3	19AP1967	0.91123)	(1342	A 4	19AP1967	0.25265)	(1343	A 6	19AP1967	0.68084)
(1344	C 3	25AP1967	0.21011)	(1345	C 5	25AP1967	0.08187)	(1346	C 7	21AP1967	0.15889)
(1347	E 2	23AP1967	1.25193)	(1348	E 5	23AP1967	0.11378)	(1368	A 3	4MY1967	0.05655)
(1369	A 4	4MY1967	0.00373)	(1370	A 6	3MY1967	0.23478)	(1373	C 7	5MY1967	0.00285)
(1374	E 2	7MY1967	0.01494)	(1375	E 3	7MY1967	0.00241)	(1376	E 5	6MY1967	0.01968)
(1408	A 3	23MY1967	0.00894)	(1409	A 4	23MY1967	0.00298)	(1411	C 3	31MY1967	0.02872)
(1412	C 5	31MY1967	0.00421)	(1413	C 7	25MY1967	0.00316)	(1414	E 2	28MY1967	0.02687)
(1415	E 3	28MY1967	0.00450)	(1416	E 5	28MY1967	0.03280)	(1431	A 3	12JN1967	1.19989)
(1432	A 4	13JN1967	0.12261)	(1433	C 3	17JN1967	0.24545)	(1434	C 5	17JN1967	0.01794)
(1435	C 7	13JN1967	0.73880)	(1436	E 2	15JN1967	1.85989)	(1437	E 3	15JN1967	0.01346)
(1438	E 5	14JN1967	0.00362)	(1446	A 3	11JL1967	1.88347)	(1447	A 4	11JL1967	0.65494)
(1448	A 6	10JL1967	10.64545)	(1449	C 3	16JL1967	0.22546)	(1450	C 5	16JL1967	0.03428)
(1451	C 7	16JL1967	14.19235)	(1452	E 2	14JL1967	20.11751)	(1453	E 3	15JL1967	0.35387)
(1454	E 5	15JL1967	2.38048)	(1510	C 7	29AU1967	0.16756)	(1511	E 2	1SE1967	5.66940)
(1512	E 3	1SE1967	0.49866)	(1513	E 5	31AU1967	0.09121)	(1534	A 6	19SE1967	0.04654)
(1536	E 2	24SE1967	8.78006)	(1537	E 3	24SE1967	3.32097)	(1538	E 5	23SE1967	2.12672)
(1539	C 3	4OC1967	0.00503)	(1541	E 2	11OC1967	1.24528)	(1542	E 3	11GC1967	0.98149)
(1543	E 5	10CC1967	0.10774)	(1377	GS 1	9MY1967	0.00396)	(1378	GS 2	9MY1967	0.02103)
(1379	GS 3	9MY1967	0.00619)	(1380	GS 4	9MY1967	0.02354)	(1382	GS 6	10MY1967	0.00278)
(1384	GS 8	10MY1967	0.00739)	(1385	GS 9	10MY1967	0.00471)	(1386	GS10	12MY1967	0.00287)
(1387	GS11	12MY1967	0.01584)	(1388	GS12	12MY1967	0.01207)	(1389	GS13	12MY1967	0.01547)
(1390	GS14	12MY1967	0.01174)	(1391	GS15	12MY1967	0.00479)	(1392	GS16	12MY1967	0.16334)
(1393	GS17	13MY1967	0.01918)	(1394	GS18	13MY1967	0.16170)	(1395	GS19	13MY1967	0.32882)
(1396	GS20	13MY1967	0.56972)	(1397	GS21	13MY1967	3.29642)	(1398	GS22	14MY1967	0.02125)
(1554	GS 1	3OC1967	6.47548)	(1555	GS 2	3OC1967	7.16808)	(1556	GS 3	3OC1967	0.04172)
(1557	GS 4	3OC1967	0.16069)	(1558	GS 5	4OC1967	0.05549)	(1559	GS 7	4OC1967	0.03148)
(1560	GS 8	4OC1967	0.08501)	(1561	GS 9	4OC1967	0.08217)	(1562	GS10	5OC1967	0.03454)
(1563	GS11	5OC1967	0.00701)	(1568	GS16	5CC1967	0.02453)	(1569	GS17	5OC1967	0.02527)
(1570	GS18	5CC1967	0.01983)	(1571	GS19	6CC1967	0.17796)	(1572	GS20	6OC1967	0.69399)
(1573	GS21	6OC1967	0.10527)	(1574	GS22	6CC1967	0.02301)	(1575	GS28	6OC1967	0.07225)
(1544	ML 1	2CC1967	0.10246)	(1547	MS 1	2OC1967	1.40519)	(1524	PI 1	20SE1967	0.15324)
(1546	LV 1	2CC1967	0.42015)	(1521	SH 1	18SE1967	0.02308)	(1523	RA 1	19SE1967	0.01845)
(1525	PW 1	2OSE1967	0.04178)	(1526	MC 1	20SE1967	0.35842)	(1527	TR 1	20SE1967	0.08805)
(1528	SB 1	20SE1967	0.05775)	(1529	KW 1	20SE1967	0.04797)	(1530	FR 1	24SE1967	2.08021)
(1531	GH 1	25SE1967	0.00845)	(1545	WL 1	2CC1967	0.04054)	(1548	CA 1	3OC1967	0.01272)
(1549	MQ 1	4OC1967	0.06852)	(1551	ES 1	5CC1967	0.08787)	(1552	SM 1	6OC1967	0.41598)
(1550	MR 1	5OC1967	0.65667)	(1553	SG 1	6CC1967	0.80053)	(1428	PU 2	29MY1967	3.66386)
(1426	MS 2	29MY1967	18.64566)	(1351	MI 2	21AP1967	3.67417)	(1427	LU 2	29MY1967	5.61743)
(1417	MO 2	22MY1967	14.53567)	(1418	SH 2	22MY1967	0.07776)	(1350	BM 2	19AP1967	0.49338)
(1425	RA 2	25MY1967	1.34382)	(1359	PW 2	5MY1967	3.37323)	(1401	MO 2	6MY1967	2.44591)
(1402	TR 2	6MY1967	0.73099)	(1400	SB 2	6MY1967	1.71551)	(1352	KW 2	21AP1967	4.12300)
(1353	FR 2	23AP1967	4.21941)	(1354	GH 2	25AP1967	6.65573)	(1429	WL 2	29MY1967	22.93236)
(1403	CA 2	10MY1967	0.05231)	(1404	MC 2	10MY1967	0.05081)	(1405	ES 2	12MY1967	1.19324)
(1407	SM 2	14MY1967	7.35654)	(1349	CI 2	19AP1967	2.01164)	(1406	CB 2	13MY1967	0.02965)
(1419	BU 2	23MY1967	3.51520)	(1420	IH 2	23MY1967	1.78248)	(1421	CH 2	23MY1967	1.75225)
(1422	GA 2	23MY1967	2.86108)	(1423	WA 2	25MY1967	2.53501)	(1424	KN 2	25MY1967	3.62377)
(1430	MC 2	12JN1967	2.49198)	(							

Diatoma tenue var. *pachycephala* Grun.

Diatoma tenue var. *pachycephala* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 50, fig. 15. 1881.

201 DITENUVP TOT NO OF STATIONS 275

(46910	CH	DC1945	0.67506)	(46921	CH	23NC1945	2.73235)	(46908	CH	DE1945	6.87815)
(46917	CH	12JA1946	4.55523)	(46915	CH	20FE1946	1.72993)	(46914	CH	19AP1946	0.41643)
(46924	CH	10MY1946	0.89381)	(46923	CH	22NC1946	0.12895)	(46920	CH	20DE1946	0.03358)
(46909	CH	MR1947	0.09107)	(46912	CH	AP1947	0.02300)	(46916	CH	4MY1947	6.41767)

(46906	CH	MY1947	6.85927)	(46519	CH	5JN1947	3.05762)	(46907	CH	JL1947	C.73720)
(46922	CH	21AU1947	0.03926)	(46758	EV	5JN1937	0.79880)	(46771	EV	11JN1937	1.93048)
(46743	EV	20JN1937	0.13274)	(46745	EV	3JL1937	0.06270)	(46770	EV	9JL1937	C.02982)
(46764	EV	17JL1937	0.16116)	(46757	EV	25JL1937	0.10110)	(46747	EV	1AU1937	0.01980)
(46763	EV	23AU1937	0.02029)	(46765	EV	30AU1937	0.04462)	(46760	EV	22SE1937	C.16249)
(46750	EV	24SE1537	0.29222)	(46744	EV	60C1937	4.36588)	(46748	EV	13OC1937	C.08540)
(46767	EV	27OC1937	0.14700)	(46749	EV	12MR1938	C.23061)	(46768	EV	16MR1938	0.13229)
(46762	EV	18MR1938	0.08822)	(46751	EV	30MR1938	1.25056)	(46772	EV	18AP1938	2.98084)
(46756	EV	27AP1938	11.61240)	(46759	EV	19MY1938	C.47265)	(46761	EV	27MY1938	0.33522)
(46766	EV	14DE1538	5.32319)	(1225	C 6	15MY1964	C.68601)	(1226	C 7	16MY1964	C.76909)
(1227	C' 2	13MY1964	0.10308)	(1228	D 2	14MY1964	0.03503)	(1229	D 5	14MY1964	C.13533)
(1230	E 2	16MY1964	0.08001)	(1231	E 3	16MY1964	0.01468)	(1232	E 5	16MY1964	0.01565)
(1233	B 3	5JN2964	0.25720)	(1234	B 3	18JN1964	0.23336)	(1235	C 7	16JN1964	C.05084)
(1439	B 6	5JN1964	0.30769)	(1236	C' 1	8JN1964	0.07876)	(1237	C' 2	8JN1964	C.16241)
(1238	D 3	11JN1964	0.02800)	(1239	D 4	11JN1964	C.00812)	(1240	D 6	10JN1964	C.00460)
(1241	E 2	13JN1564	0.04731)	(1242	E 3	13JN1964	0.00300)	(1243	E 6	13JN1964	C.1C023)
(1244	F 1	11JN1964	0.11842)	(1245	F 2	11JN1964	C.01037)	(1246	F 3	11JN1964	0.00598)
(1247	B 3	14JL1964	0.31587)	(1248	B 3	24JL1964	C.06306)	(1440	B 6	11JL1964	C.05213)
(1441	B 6	24JL1964	0.30838)	(1249	C 3	8JL1964	0.44813)	(1250	C 6	10JL1964	C.52210)
(1251	C 7	16JL1964	0.40555)	(1252	C' 1	16JL1964	1.26918)	(1253	C' 2	16JL1964	C.23279)
(1254	D 2	15JL1964	0.26815)	(1255	D 5	15JL1964	C.20789)	(1256	E 2	14JL1964	C.28211)
(1257	E 3	14JL1964	0.08135)	(1258	F 1	6JL1964	0.53803)	(1259	F 2	6JL1964	C.59804)
(1260	F 3	6JL1964	0.17954)	(1261	B 3	2AU1964	0.01570)	(1262	B 3	17AU1964	0.01680)
(1442	B 6	2AU1964	C.89730)	(1443	B 6	16AU1964	0.13838)	(1263	C 7	15AU1964	C.C1201)
(1264	C' 1	10AU1964	0.15639)	(1265	C' 2	10AU1964	C.04024)	(1266	D 3	18AU1964	0.18591)
(1267	D 6	18AU1964	0.05837)	(1268	E 2	15AU1964	C.17234)	(1269	E 3	15AU1964	C.04659)
(1270	F 1	10AU1964	0.09803)	(1271	C 7	22SE1964	0.03264)	(1272	C' 1	10SE1964	C.0C821)
(1273	C' 2	10SE1964	0.07527)	(1274	D 1	17SE1964	0.00469)	(1275	D 2	17SE1964	C.03226)
(1276	D 3	18SE1964	0.03353)	(1277	D 4	18SE1964	C.00620)	(1278	D 6	18SE1964	1.74872)
(1279	E 1	16SE1964	0.02356)	(1280	E 2	16SE1964	0.00681)	(1281	E 3	16SE1964	C.C5494)
(1282	E 4	16SE1964	0.07756)	(1283	E 5	16SE1964	0.10420)	(1284	E 6	17SE1964	C.61322)
(1285	F 1	15SE1964	0.03494)	(1286	F 2	15SE1964	0.02189)	(1287	F 3	15SE1964	C.02002)
(1288	B 3	15OC1964	0.00218)	(1445	B 6	14OC1964	C.13372)	(1289	C 7	14OC1964	C.41335)
(1290	C' 1	16OC1964	0.02274)	(1291	C' 2	16OC1964	0.00489)	(1292	D 1	15OC1964	0.01491)
(1293	D 2	15OC1964	0.06603)	(1294	D 3	15OC1964	0.42522)	(1295	D 4	15OC1964	C.1C703)
(1296	D 5	14OC1964	0.27541)	(1297	D 6	14OC1964	1.99916)	(1298	E 1	12OC1964	0.01246)
(1299	E 2	12OC1564	0.04084)	(1300	E 3	13OC1964	C.05012)	(1301	E 4	13OC1564	C.27819)
(1302	E 5	13OC1964	0.28342)	(1303	E 6	13OC1964	5.48528)	(1304	F 1	11OC1964	C.0C494)
(1305	F 2	11OC1964	0.00173)	(1307	B 6	NO1964	C.38967)	(1308	C 7	6NO1964	1.06451)
(1309	C' 1	10NO1964	0.02251)	(1310	C' 2	10NO1964	0.01361)	(1311	D 1	8NO1964	C.1C835)
(1312	D 2	8NO1964	0.21729)	(1313	D 3	9NO1964	C.62934)	(1314	D 4	9NO1964	C.44211)
(1315	D 5	9NO1964	0.60055)	(1316	D 6	9NO1964	0.52886)	(1317	E 1	6NO1964	0.26806)
(1318	E 2	7NO1964	C.29298)	(1319	E 3	7NO1964	C.15448)	(1320	E 4	7NO1964	0.14478)
(1321	E 5	7NO1964	0.74698)	(1322	E 6	7NO1964	C.77982)	(1323	F 1	6NO1964	0.0C418)
(1324	F 2	6NO1964	0.00466)	(1325	F 3	6NO1964	0.05290)	(1336	C 3	27JA1967	0.01155)
(1337	C 3	2MR1967	0.82306)	(1338	C 3	28MR1967	0.92558)	(1339	C 5	28MR1967	C.12783)
(1340	C 7	28MR1967	1.83247)	(1341	A 3	19AP1967	1.51872)	(1342	A 4	19AP1967	1.51589)
(1343	A 6	19AP1967	0.92400)	(1344	C 3	25AP1967	0.12904)	(1345	C 5	25AP1967	C.12280)
(1346	C 7	21AP1967	0.7C100)	(1347	E 2	23AP1967	0.83570)	(1348	E 5	23AP1967	C.15764)
(1368	A 3	4MY1967	0.04084)	(1369	A 4	4MY1967	C.00373)	(1370	A 6	3MY1967	C.24399)
(1372	C 5	5MY1967	0.00355)	(1373	C 7	5MY1967	0.00856)	(1374	E 2	7MY1967	C.01494)
(1375	E 3	7MY1967	0.00241)	(1376	E 5	6MY1967	0.00843)	(1408	A 3	23MY1967	C.06708)
(1409	A 4	23MY1967	0.00595)	(1410	A 6	24MY1967	0.C7330)	(1411	C 3	31MY1967	C.0C821)
(1412	C 5	31MY1967	C.0C421)	(1413	C 7	25MY1967	0.06318)	(1414	E 2	28MY1967	C.04366)
(1415	E 3	28MY1967	0.00225)	(1416	E 5	28MY1967	C.01093)	(1431	A 3	12JN1967	C.99132)
(1432	A 4	13JN1967	C.17881)	(1433	C 3	17JN1967	0.38109)	(1434	C 5	17JN1967	C.C1455)
(1435	C 7	13JN1967	0.24311)	(1436	E 2	15JN1967	0.15198)	(1438	E 5	14JN1967	C.02542)
(1446	A 3	11JL1967	0.62619)	(1447	A 4	11JL1967	C.53331)	(1448	A 6	10JL1967	C.90539)
(1449	C 3	16JL1967	1.33746)	(1450	C 5	16JL1967	0.66648)	(1451	C 7	16JL1967	3.85812)
(1452	E 2	14JL1967	3.12939)	(1453	E 3	15JL1967	C.20979)	(1454	E 5	15JL1967	C.16603)
(1504	A 3	28AU1967	0.00247)	(1509	C 5	2SE1967	C.64096)	(1511	E 2	1SE1967	C.25478)
(1512	E 3	1SE1967	0.02749)	(1513	E 5	31AU1967	0.08615)	(1534	A 6	19SE1967	C.01551)
(1536	E 2	24SE1967	0.09271)	(1537	E 3	24SE1967	C.03019)	(1538	E 5	23SE1967	0.02762)
(1541	E 2	11OC1967	0.03193)	(1542	E 3	11OC1967	C.00509)	(1543	E 5	10OC1967	C.01437)
(1379	GS 3	9MY1967	0.02476)	(1380	GS 4	9MY1967	0.64739)	(1381	GS 5	10MY1967	C.16696)
(1383	GS 7	10MY1967	0.04544)	(1384	GS 8	10MY1967	0.02773)	(1385	GS 9	10MY1967	C.03296)
(1386	GS10	12MY1967	0.02011)	(1387	GS11	12MY1967	0.05545)	(1388	GS12	12MY1967	C.01207)
(1389	GS13	12MY1967	0.00516)	(1390	GS14	12MY1967	0.02349)	(1392	GS16	12MY1967	0.04315)
(1393	GS17	13MY1967	0.01918)	(1394	GS18	13MY1967	0.15653)	(1395	GS19	13MY1967	C.32882)
(1396	GS20	13MY1967	0.00666)	(1397	GS21	13MY1967	0.14389)	(1398	GS22	14MY1967	2.12527)
(1554	GS 1	3OC1967	0.33445)	(1555	GS 2	3OC1967	C.17302)	(1556	GS 3	3OC1967	C.01043)
(1561	GS 9	4OC1967	0.01174)	(1562	GS10	5OC1967	0.01727)	(1563	GS11	5OC1967	0.00701)
(1564	GS12	5OC1967	0.00823)	(1565	GS13	5OC1967	0.00507)	(1568	GS16	5OC1967	C.15584)
(1569	GS17	5OC1967	0.00743)	(1571	GS19	6OC1967	0.02868)	(1572	GS20	6OC1967	C.00180)
(1573	GS21	6OC1967	0.00336)	(1574	GS22	6OC1967	0.00863)	(1544	PU 1	2OC1967	C.00238)
(1547	MS 1	2OC1967	0.03194)	(1526	MO 1	20SE1967	0.01707)	(1527	TR 1	20SE1967	C.01887)
(1528	SB 1	20SE1967	0.01444)	(1529	KN 1	20SE1967	0.02398)	(1530	FR 1	24SE1967	0.04000)
(1545	WL 1	2CC1967	0.00676)	(1549	PQ 1	4OC1967	0.02741)	(1551	ES 1	5OC1967	C.19970)
(1552	SM 1	6OC1967	0.07923)	(1553	SG 1	6OC1967	C.08079)	(1428	PU 2	29MY1967	C.15668)
(1426	MS 2	29MY1967	2.01575)	(1351	MI 2	21AP1967	4.31563)	(1427	LU 2	25MY1967	C.5C847)
(1417	MO 2	22MY1967	1.C1690)	(1418	SH 2	22MY1967	0.01555)	(1350	BH 2	19AP1967	C.CC441)
(1425	RA 2	25MY1967	0.10605)	(1399	PW 2	5MY1967	3.37323)	(1401	PQ 2	6MY1967	1.04069)
(1402	TR 2	6MY1967	1.55545)	(1400	SB 2	6MY1967	2.85918)	(1352	KW 2	21AP1967	9.2C804)
(1353	FR 2	23AP1967	0.07384)	(1354	GH 2	25AP1967	C.27617)	(1429	WL 2	29MY1967	C.58737)
(1403	CA 2	10MY1967	2.09232)	(1404	MQ 2	10MY1967	C.24136)	(1405	ES 2	12MY1967	C.54180)
(1407	SM 2	14MY1967	2.57957)	(1419	BU 2	23MY1967	0.45771)	(1420	IM 2	23MY1967	1.4C483)
(1421	CH 2	23MY1967	1.75225)	(1422	GA 2	23MY1967	1.47141)	(1423	WA 2	25MY1967	C.85068)
(1424	KN 2	25MY1967	0.38636)	(1430	MC 2	12JN1967	C.19738)				

Diatoma vulgaris Bory

Diatoma vulgare Bory, Dict. Class. Hist. Nat., 5:461. 1824.

202 DIVULGAR TCT AC CF STATICNS 73

(46921	CH		23ND1945	C.03816)	(46517	CH		12JA1946	C.01137)	(46915	CH		20FE1946	C.CC566)
(46914	CH		19AP1946	C.00961)	(46524	CH		10MY1946	C.05079)	(46923	CH		22ND1946	C.C3934)
(46920	CH		20DE1946	C.00863)	(46525	CH		JA1947	C.00245)	(46909	CH		MR1947	C.CC455)
(46916	CH		4MY1947	C.00136)	(46519	CH		5JN1947	C.01214)	(46758	EV		5JN1937	C.33521)
(46771	EV		11JN1937	C.01426)	(46743	EV		20JN1937	C.11989)	(46770	EV		9JL1937	C.C5367)
(46764	EV		17JL1937	C.05641)	(46757	EV		25JL1937	C.00963)	(46747	EV		1AU1937	C.CC495)
(46750	EV		24SE1937	C.00471)	(46748	EV		13OC1937	C.02135)	(46767	EV		27OC1937	C.CC774)
(46761	EV		27MY1938	C.00273)	(46766	EV		14DE1938	C.01584)	(1300	E 3		13OC1964	C.CC358)
(1304	F 1		11OC1964	C.00247)	(1341	A 3		19AP1967	C.00217)	(1348	E 5		23AP1967	C.CC137)
(1371	C 3		4MY1967	C.00462)	(1415	E 3		28MY1967	C.00225)	(1432	A 4		13JN1967	C.00255)
(1532	A 3		18SE1967	C.02300)	(1541	E 2		11OC1967	C.00532)	(1382	GS 6		10MY1967	C.CC278)
(1387	GS11		12MY1967	C.00396)	(1392	GS16		12MY1967	C.00308)	(1355	GS19		13MY1967	C.CC117)
(1554	GS 1		30C1967	C.01779)	(1555	GS 2		3CC1967	C.00353)	(1559	GS 7		4CC1967	C.CC350)
(1564	GS12		50C1967	C.00494)	(1569	GS17		5CC1967	C.00297)	(1570	GS18		50C1967	C.CC992)
(1571	GS19		60C1967	C.00117)	(1573	GS21		60C1967	C.00224)	(1574	GS22		40C1967	C.00208)
(1575	GS20		60C1967	C.00129)	(1544	MU 1		20C1967	C.00238)	(1547	PS 1		20C1967	C.C3992)
(1524	MI 1		20SE1967	C.02189)	(1546	LU 1		2CC1967	C.00500)	(1521	SM 1		18SE1967	C.68C82)
(1522	BH 1		18SE1967	C.00912)	(1530	FR 1		24SE1967	C.04000)	(1531	CH 1		25SE1967	C.03381)
(1545	WL 1		2CC1967	C.02703)	(1550	MR 1		5CC1967	C.16107)	(1428	MU 2		29MY1967	C.C3917)
(1426	MS 2		29MY1967	C.20997)	(1351	MI 2		21AP1967	C.00310)	(1427	LU 2		29MY1967	C.32898)
(1417	HQ 2		22MY1967	C.01122)	(1418	SM 2		22MY1967	C.34215)	(1350	BH 2		19AP1967	C.C4405)
(1399	PW 2		5MY1967	C.01360)	(1401	MC 2		6MY1967	C.01176)	(1402	BR 2		6MY1967	C.01C83)
(1400	SB 2		6MY1967	C.05361)	(1353	FR 2		23AP1967	C.05274)	(1354	CH 2		25AP1967	C.01208)
(1429	WL 2		29MY1967	C.03185)	(1403	CA 2		10MY1967	C.28769)	(1405	ES 2		12MY1967	C.CC645)
(1406	GB 2		13MY1967	C.00809)	(									

Diatoma vulgaris var. *brevis* Grun.

Diatoma vulgare var. *breve* Grunow, Verh. Zool.-Bot. Ges. Wien, 12:363. 1862.

203 DIVULGVB TCT AC CF STATICNS 6

(46758	EV		5JN1937	C.00357)	(1236	C° 1		8JN1964	C.00350)	(1264	C° 1		10AU1964	C.CC193)
(1341	A 3		19AP1967	C.00217)	(1567	GS15		50C1967	C.00159)	(1521	SM 1		18SE1967	C.02885)

Diatoma vulgaris var. *linearis* V. H.

Diatoma vulgare var. *linearis* Van Heurck, Syn. Diat. Belgique, pl. 50, figs. 7-8. 1881.

205 DIVULGVL TCT AC CF STATICNS 3

(1392	GS16		12MY1967	C.00616)	(1549	MQ 1		40C1967	C.12334)	(1407	SM 2		14MY1967	C.00597)

Genus *Diploneis* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1844:84. 1844.

Members of the genus *Diploneis* find their primary habitat in epipelic communities. Only occasional, isolated specimens are found in our collections.

Diploneis boldtiana Cleve

Diploneis boldtiana Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):43, pl. 2, fig. 12. 1891.

208 DPBOLDTI TCT NO OF STATICNS 18

(60973	CH		1876	C.02362)	(3540	CH		11MY1879	C.00466)	(3541	CH		1FE1881	C.02913)
(46910	CH		CC1945	C.00328)	(46521	CH		23ND1945	C.00065)	(46908	CH		DE1945	C.01007)
(46914	CH		19AP1946	C.00214)	(46516	CH		4MY1947	C.00068)	(46922	CH		21AU1947	C.CC194)
(46758	EV		5JN1937	C.00357)	(46764	EV		17JL1937	C.00806)	(46757	EV		25JL1937	C.CC481)
(46747	EV		1AU1937	C.00248)	(46768	EV		16MR1938	C.01470)	(1563	GS11		50C1967	C.CC234)
(1565	GS13		50C1967	C.00507)	(1567	GS15		5CC1967	C.00159)	(1530	FR 1		24SE1967	C.C1000)

Diploneis domblittensis (Grun.) Cleve

Navicula expleta var. *domblittensis* Grunow *in*: Mojsisovics and Neumayer, Beitr. Paläontol. Österreich-Ungarns, Bd. 2, Heft 4, p. 156, pl. 30, fig. 60. 1882.
Diploneis domblittensis (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):91, pl. 2, fig. 2. 1894.

207 DPDOMBLG TOT NO OF STATIONS 1

(1389	GS13	12MY1967	C.00258)	(							

Diploneis elliptica (Kutz.) Cleve

Navicula elliptica Kützing, Bacill., p. 98, pl. 30, fig. 55. 1844.
Diploneis elliptica (Kütz.) Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):42. 1891.

208 DPELLIPT TOT NO OF STATIONS 7

1469C5	CH	MR1947	0.00455)	146516	CH	4MY1943	C.C0034)	146907	CH	JL1947	C.00148)
(1559	GS 7	4DC1967	C.00350)	(1565	GS13	5DC1967	C.01014)	(1567	CS15	5DC1967	C.00476)
(1403	EA 2	10MY1967	0.01308)	(							

Diploneis oblongella (Naeg.) Ross

Navicula oblongella Naeglei *ex* Kützing, Sp. Alg., p. 890. 1849.
Diploneis oblongella (Naeg.) Ross, Natl. Mus. Canada Bull., 97:212. 1947.

Coll: 1405

Diploneis oculata (Bréb.) Cleve

Navicula oculata de Brébisson, J. Quekett Micr. Club, 2:38, fig. 5. 1870.
Diploneis oculata (Bréb.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd 26(2):92. 1894.

209 DPOCULAT TOT NO OF STATIONS 9

146906	CH	MY1947	0.00066)	146767	EV	27DC1937	0.00387)	(1245	F 2	11JN1964	C.CC346)
(1260	F 3	6JL1964	0.00191)	(1285	F 1	15SE1964	0.00582)	(1389	GS13	12MY1967	C.00258)
(1395	GS15	13MY1967	0.00117)	(1554	GS 1	30C1967	C.00356)	(1565	CS13	5DC1967	C.C3042)

Diploneis ovalis (Hilse) Cleve

Pinnularia ovalis Hilse, Jahres-Ber. Schlesischen Ges. Vaterl. Kult., 36:82. 1860.
Diploneis ovalis (Hilse) Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):44, pl. 2, fig. 13. 1891.

210 DPOVALIS TOT NO OF STATIONS 6

160973	CH	1876	0.04724)	146524	CH	10MY1946	C.00071)	(1285	F 1	15SE1964	0.01165)
(1304	F 1	11DC1964	0.00247)	(1389	GS13	12MY1967	C.00774)	(1354	GH 2	25AP1967	C.CC173)

Diploneis parma Cleve

Diploneis parma Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):43, pl. 2, fig. 10. 1891.

211 DPPARMA TCT NO OF STATIONS 20

146910	CH	0C1945	0.00109	146517	CH	12JA1946	0.00083	146914	CH	19AP1946	C.00107
146924	CH	10MY1946	0.00141	146520	CH	20DE1946	C.00021	146905	CH	JA1947	C.00123
146906	CH	MY1947	C.00066	146522	CH	21AU1947	0.00145	1385	GS 9	10MY1967	C.CC235
1389	GS13	12MY1967	0.00516	1390	GS14	12MY1967	C.01174	1393	GS17	13MY1967	C.00274
1564	GS12	5CC1967	C.00165	1565	GS13	5OC1967	C.03042	1567	GS15	5OC1967	C.0C635
1569	GS17	5CC1967	C.00149	1574	GS22	6CC1967	0.00575	1575	GS20	6OC1967	C.00258
1546	LU 1	2DC1967	0.00500	1354	GH 2	25AP1967	0.00173				

Diploneis subovalis Cleve

Diploneis subovalis Cleve, K. Svenska Vet.-Akad. Handl., Ny F̈oljd, 26(2):96, pl. 1, fig. 27. 1894.

212 DPSUBOVA TCT NO OF STATIONS 3

146747	EV	1AU1937	0.00248	1388	GS12	12MY1967	C.01207	1565	GS13	5OC1967	C.02028

Species *incertae sedis*

Diploneis sp. #1.

213 DPSPECCA TCT NO OF STATIONS 2

1567	GS15	5OC1967	0.00159	1568	GS16	5OC1967	0.00144

Diploneis sp. #2.

214 DPSPECOB TCT NO OF STATIONS 2

1545	WL 1	2CC1967	0.00676	1350	BH 2	19AP1967	0.00220

Genus *Epithemia* Bréb.
de Brébisson and Godey, Consid. Diat., p. 16. 1838.

Members of the genus *Epithemia* are particularly adapted for epiphytic growth, usually on the coarser attached algae or on aquatic higher plants. Only occasional isolated specimens appear in our collections.

Epithemia andrewsii nom. nov.

Epithemia irregularis Andrews, U. S. Geol. Surv. Prof. Paper 523A:22, pl. 3, fig. 22-25. 1966. (non Fritsch and Rich 1925).

215 EPANDREW TCT NO OF STATIONS 2

160973	CH	1876	0.02362	146917	CH	12JA1946	0.00028

Epithemia argus (Ehr.) K̈utz.

Eunotia argus Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:125, pl. 2(4), fig. 7. 1843.
Epithemia argus (Ehr.) K̈utzing, Bacill., p. 35, pl. 29, figs. 55-56. 1844.

Coll: 1092.

Epithemia argus var. *alpestris* (Wm. Smith) Grun.

Epithemia alpestris Wm. Smith, Syn. British Diat., Vol. 1, p. 13, pl. 1, fig. 7. 1853.
Epithemia argus var. *alpestris* (Wm. Smith) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:329, pl. 3, fig. 28. 1862.

216 EPARGUVA TOT NO OF STATIONS 1

(3541	CH		1FE1881	0.00978)	(								

Epithemia argus var. *longicornis* (Ehr.) Grun.

Epithemia longicornis Ehrenberg *ex* Pritchard, Hist. Infus., p. 760, pl. 15, figs. 6-9. 1852.
Epithemia argus var. *longicornis* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:329. 1862.

Coll: 1092.

Epithemia intermedia Fricke

Epithemia intermedia Fricke *in*: A. Schmidt, Atlas Diat., pl. 249, figs. 14-18. 1904.

217 EPINTERM TOT NO OF STATIONS 5

(60973	CH		1876	0.14171)	(46906	CH		MY1967	C.00066)	(1567	GS15		50C1967	C.00159)
(1552	SH 1		06C1967	0.00660)	(1401	MD 2		6MY1967	0.00588)	(				

Epithemia smithii Carruthers

Epithemia proboscidea Wm. Smith, Syn. British Diat., Vol. 1, p. 13, pl. 1, fig. 8. 1853. (non Kütz. 1844).
Epithemia smithii Carruthers *in*: Gray, Handb. British Freshw. Weeds, p. 76. 1864.

218 EPSMITHI TOT NO OF STATIONS 6

(6C973	CH		1876	0.02362)	(3541	CH		1FE1881	C.00978)	(46924	CH	10MY1946	C.00071)
(46763	EV		23AU1937	0.02029)	(1285	F 1		15SE1964	0.01165)	(1574	GS22	60C1967	C.00288)

219 EPSOREXG TOT NO OF STATIONS 6

(1389	GS13		12MY1567	0.00258)	(1396	GS20		13MY1967	C.00074)	(1574	GS22	60C1967	C.00288)
(1531	GH 1		25SE1967	0.00845)	(1545	ML 1		20C1967	0.00674)	(1550	PR 1	50C1967	0.03717)

Epithemia turgida (Ehr.) Kütz.

Navicula turgida Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1830:64. 1832.
Epithemia turgida (Ehr.) Kützing, Bacill., p. 34, pl. 5, fig. 14. 1844.

220 EPTURGID TOT NO OF STATIONS 9

(3541	CH		1FE1881	0.03912)	(46752	EV		15SE1937	C.02177)	(1279	E 1	16SE1964	C.00393)
(1555	GS 2		30C1967	0.00353)	(1565	GS13		50C1967	0.00507)	(1567	GS15	50C1967	0.00318)
(1574	GS22		60C1967	0.01151)	(1575	GS28		60C1967	0.00129)	(1352	AW 2	21AP1967	C.00859)

Epithemia zebra (Ehr.) Kütz.

Navicula zebra Ehrenberg, Abh. Akad. Wiss. Berlin, 1833:262. 1835.
Epithemia zebra (Ehr.) Kützing, Bacill., p. 34, pl. 5, fig. 7(6)a-c. 1844.

222 EPZEBRA TCT NC OF STATIONS 4

160973	CH		1876	0.04724	3541	CH		1FE1881	0.02935	1574	GS22		4DC1967	C.CC288
1529	AM 1		20SE1967	0.02398										

Epithemia zebra var. *porcellus* (Kütz.) Grun.

Epithemia porcellus Kützing, Bacill., p. 34, pl. 5, figs. 18-19. 1844.
Epithemia zebra var. *porcellus* (Kütz.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:328, pl. 6, figs. 3-4. 1862.

221 EPZEBRVP TCT NC OF STATIONS 4

160973	CH		1876	0.02362	196757	EV		25JL1937	0.00981	1389	A 4		4MY1967	C.CC373
1545	WL 1		20C1967	0.00676	1550	MR 1		5DC1967	0.01239	1401	MD 2		6MY1967	C.C1176

Genus *Eucocconeis* Cleve
Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):173. 1895.

Members of the genus *Eucocconeis* are most abundant in benthic communities. Only occasional specimens are noted in our collections.

Eucocconeis flexella (Kütz.) Hust.

Cymbella? flexella Kützing, Bacill., p. 80, pl. 4, fig. 14. 1844.
Eucocconeis flexella (Kutz.) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 193, fig. 270. 1930.

223 EUFLEXEL TCT NC OF STATIONS 22

146924	CH	10MY1946	C.00071	148518	CH		6MY1947	0.02579	146906	CH		MY1947	C.CCC66	
146919	CH	5JN1947	0.02276	1258	F 1		6JL1964	0.00472	1279	E 1		16SE1964	0.00393	
1285	F 1	15SE1964	0.02916	1286	F 2		15SE1964	C.01C95	1387	GS11		12MY1967	C.CC396	
1388	GS12	12MY1967	0.04223	1389	GS13		12MY1967	C.01031	1390	GS14		12MY1967	C.01174	
1392	GS16	12MY1967	0.00308	1393	GS17		13MY1967	C.CC274	1394	GS18		13MY1967	C.0C172	
1565	GS13	5CC1967	0.01014	1567	GS15		5DC1967	0.00794	1569	GS17		5DC1967	C.0C297	
1574	GS22	6CC1967	C.00575	1550	MR 1		5DC1967	C.02478	1403	CA 2		10MY1967	C.05231	
1404	MD 2	10MY1967	0.03811											

Eucocconeis flexella var. *alpestris* (Brun) Hust.

Achnanthes flexella var. *alpestris* Brun, Diat. Alpes et Jura, p. 30, fig. 26. 1880.
Eucocconeis flexella var. *alpestris* (Brun) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 193, fig. 271. 1930.

224 EUFLEJVA TCT NC OF STATIONS 8

1565	GS13	5CC1967	C.03042	1551	ES 1		5CC1967	C.00709	1550	MR 1		5DC1967	C.0C197	
1426	MS 2	29MY1967	0.01050	1417	MD 2		22MY1967	0.01122	1350	BM 2		19AP1967	C.0C661	
1405	ES 2	12MY1967	C.01535	1407	SP 2		14MY1967	C.01194						

Eucocconeis lapponica Hust.

Eucocconeis lapponica Hustedt, Naturw. Untersuch. Sarekgebirges Schwedisch-Lappland, Bd. 3, Bot. Heft 6, p. 549, pl. 17, figs. 8-9. 1924.

225 EULAPPCN TOT NC OF STATIONS 1

(46757	EV	25JL1937	0.00481)	(	

Eucocconeis lapponica var. *ninckei* (Reim.) Comb. nov.

Achnanthes ninckei Guermeur and Manguin, Österreichische Bot. Zeitschr., 100(4/5):541, pl. 1, figs. 10-11. 1953.
Achnanthes lapponica var. *ninckei* (Guer. and Mang.) Reimer *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:259, pl. 16, figs. 29-30. 1966.

226 EULAPPVN TOT NC OF STATIONS 26

(46758	EV	5JN1937	0.00713)	(46757	EV	25JL1937	0.00481)	(46763	EV	23AU1937	0.08117)
(46752	EV	15SE1937	0.02177)	(46762	EV	18MR1938	0.04411)	(1270	F 1	10AU1964	0.00272)
(1285	F 1	15SE1964	0.00582)	(1304	F 1	11OC1964	0.00247)	(1354	GS18	13MY1967	0.00172)
(1565	GS13	5OC1967	0.01014)	(1567	GS15	5OC1967	0.00159)	(1572	GS20	6OC1967	0.00090)
(1574	GS22	6OC1967	0.02013)	(1575	GS28	6OC1967	0.00129)	(1527	TR 1	20SE1967	0.00629)
(1529	KW 1	20SE1967	0.01199)	(1552	SM 1	6OC1967	0.00660)	(1550	PH 1	5OC1967	0.18585)
(1426	MS 2	29MY1967	0.01050)	(1350	BH 2	19AP1967	0.00220)	(1400	SB 2	6MY1967	0.00596)
(1403	CA 2	10MY1967	0.05231)	(1404	MC 2	10MY1967	0.05081)	(1405	ES 2	12MY1967	0.01290)
(1407	SM 2	14MY1967	0.00597)	(1421	CH 2	23MY1967	0.01735)	(			

Genus *Eunotia* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1837:44. 1837.

Members of the genus *Eunotia* find their primary habitat in benthic communities. The majority of species are found only in waters of relatively low pH and total dissolved solids. The specimens taken in the Lake Michigan plankton are undoubtedly derived from either benthic habitats in the lake or, more likely, from streams entering the lake,

Eunotia arcus Ehr.

Eunotia arcus Ehrenberg, Ber. Akad. Wiss. Berlin, 1837:45. 1837.

227 ENARCUS TOT NC OF STATIONS 1

(1565	GS13	5OC1967	0.00507)	(	

Eunotia arcus var. *bidens* Grun.

Eunotia arcus var. *bidens* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 34, fig. 7. 1881.

229 ENARCUVB TOT NC OF STATIONS 3

(1388	GS12	12MY1967	0.00603)	(1524	MI 1	20SE1967	0.02189)	(1404	MC 2	10MY1967	0.02541)

Eunotia arcus var. *fallax* Hust.

Eunotia arcus var. *fallax* Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 175, fig. 219. 1930.

228 ENARCUVF TOT NC OF STATIONS 1

(46768	EV	16MR1938	0.01470)	(	

Eunotia curvata (Kütz.) Lagerst.

Synedra lunaris Ehrenberg, Abh. Akad. Wiss. Berlin, 1831:87. 1832.
Exilaria curvata Kützing, Alg. Dec., No. 112. 1834.
Eunotia lunaris (Ehr.) Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 35, figs. 3-4. 1881. (non de Brébisson, 1864).
Eunotia curvata (Kutz.) Lagerstedt, Öfv. K. Svenska Vet.-Akad. Förh., 41(2):61. 1884.

230 ENCURVAT TOT NO OF STATIONS 2
(1550 MR 1 5DC1967 0.01235) (1427 LL 2 25MY1967 0.01211) (

Eunotia diodon Ehr.

Eunotia diodon Ehrenberg, Ber. Akad. Wiss. Berlin, 1837:45. 1837.

231 ENDIODON TOT NO OF STATIONS 1
(1404 MQ 2 .OMY1967 0.01270) (

Eunotia exigua (Bréb.) Rabh.

Himantidium exiguum de Brébisson *ex* Kützing, Sp. Alg., p. 8. 1849.
Eunotia exigua (Bréb.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 73. 1864.

Coll: 1404.

Eunotia flexuosa Bréb.

Eunotia flexuosa de Brébisson *ex* Kützing, Sp. Alg., p. 6. 1849.

232 ENFLEXUO TOT NO OF STATIONS 1
(1574 G522 6DC1967 0.00288) (

Eunotia incisa Wm. Smith

Eunotia incisa Wm. Smith *ex* Gregory, Quart. J. Micr. Sci., 2:96, pl. 4, fig. 4. 1854.

233 ENINCISA TOT NO OF STATIONS 1
(1417 MC 2 22MY1967 0.00374) (

Eunotia naegelii Migula

Eunotia naegelii Migula *in*: Thomé, Fl. Deutschland, 2(1):203. 1907.

234 ENNAEGEL TOT NO OF STATIONS 1
(1404 MQ 2 10MY1967 0.00352) (

Eunotia pectinalis (O. F. Müll.) Rabh.

Conferva pectinalis O. F. Müller, Nova Octa Acad. Sci. Petropolitane, 3(Hist.):91, pl. 1, figs. 4-7. 1788.
Eunotia pectinalis (O. F. Müll.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 73. 1864.

Coll: 1404.

Eunotia praerupta Ehr.

Eunotia praerupta Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:414. 1843.

235 ENPRAERU TOT NO OF STATIONS 4

(1304	F 1		11CC1964	0.00247)	(1388	GS12		12MY1967	C.00603)	(1569	GS17		9CC1967	C.CC149)
(1553	SG 1		6DC1967	0.00734)	(									

Eunotia serra Ehr.

Eunotia serra Ehrenberg, Ber. Akad. Wiss. Berlin, 1837:45. 1837.

Coll: 1092.

Eunotia trinacria Krasske

Eunotia trinacria Krasske, Bot. Arch., 27:349, fig. 1. 1929.

236 EATRINAC TOT NO OF STATIONS 1

(1404	PQ 2		10MY1967	0.01270)	(

Genus *Fragilaria* Lyngb.
Lyngbye, Tent. Hydrophyt. Danicae, p. 182. 1819.

Fragilaria brevistriata Grun.

Fragilaria brevistriata Grunow *in*: Van Heurck, Syn. Diat. Belgique, p. 157, pl. 45, fig. 32. 1885.

Cells rectangular, in life united by the valve faces into band-shaped colonies of varying length. Valves linear with subrostrate apices, specimens from Lake Michigan 10-30μ long, 3-5μ broad. The striae are short, marginal, slightly radiate, about 13-16 in 10μ. Due to the shortening of the striae the pseudoraphe is a broad, linear-lanceolate space, without ornamentation, occupying most of the valve surface.

Most of our records of this taxon come from inshore areas in Lake Michigan. Published records indicate that it reaches its greatest abundance in smaller mesotrophic to eutrophic lakes.

237 FBREVIS TOT NO OF STATIONS 55

(60973	CH		1876	0.04724)	(46521	CH		23NO1945	0.00129)	(46909	CH		MR1947	C.0C455)
(46906	CH		MY1947	0.00066)	(46763	EV		23AU1937	C.02029)	(1227	C* 2		13MY1964	C.CC110)
(1253	C* 2		14JU1964	0.00228)	(1275	D 2		17SE1964	0.00645)	(1279	E 1		16SE1964	C.C1178)

(1284	E 6	17SE1964	0.00318)	(1285	F 8	19SE1964	0.01747)	(1292	D 1	19DC1964	0.00373)
(1304	F 1	11CC1964	0.00247)	(1342	A 4	19AP1967	0.00361)	(1411	C 3	31MY1967	0.CC410)
(1538	E 5	23SE1967	0.00552)	(1388	GS12	12MY1967	0.01207)	(1389	GS13	12MY1967	0.00258)
(1390	GS14	12MY1967	0.00587)	(1392	GS16	12MY1967	0.01233)	(1394	GS18	13MY1967	0.CC344)
(1395	GS19	13MY1967	0.00117)	(1396	GS20	13MY1967	0.00592)	(1397	GS21	13MY1967	0.CC065)
(1398	GS22	14MY1967	0.00304)	(1565	GS13	5DC1967	C.07606)	(1567	GS15	5DC1967	C.0C159)
(1569	GS17	5CC1967	0.00149)	(1570	GS18	5DC1967	0.00992)	(1572	GS20	6DC1967	C.C1352)
(1573	GS21	6CC1967	C.00672)	(1574	GS22	6CC1967	C.02013)	(1575	GS28	8DC1967	C.0C516)
(1544	MU 1	2CC1967	0.00477)	(1546	LU 1	20C1967	C.02001)	(1520	PG 1	18SE1967	C.26875)
(1521	SM 1	18SE1967	0.CC977)	(1526	MO 1	20SE1967	0.01138)	(1527	TR 1	20SE1967	C.0C629)
(1531	GM 1	25SE1967	0.01691)	(1545	WE 1	20C1967	C.04730)	(1552	SM 1	6CC1967	C.02641)
(1550	MR 1	5CC1967	1.98241)	(1553	SG 1	6CC1967	0.03672)	(1428	MU 2	25MY1967	C.0C603)
(1426	MS 2	29MY1967	0.02100)	(1351	MI 2	21AP1967	C.00310)	(1417	PO 2	22MY1967	0.04488)
(1350	BM 2	19AP1967	0.03435)	(1401	MC 2	8MY1967	C.01176)	(1352	PM 2	21AP1967	C.0C859)
(1354	GM 2	25AP1967	0.0C516)	(1404	MG 2	10MY1967	C.05081)	(1407	SM 2	14MY1967	C.02388)
(1406	GB 2	13MY1967	0.CC270)	(							

Fragilaria brevistriata var. *capitata* Hérib.

Fragilaria brevistriata var. *inflata* Héribaud, Foss. Diat. Auvergne, vol. 2, p. 92, pl. 12, fig. 18. 1903.

The valves of this entity are lanceolate with subcapitate to capitate apices. All other features are as in the nominate variety.

Grunow's prior figure of *F. brevistriata* var. *subcapitata* (in Van Heurck 1881) is apparently without standing because of his failure to either figure or describe the nominate variety until 1885 (for discussion see Patrick and Reimer 1966).

Coll: 827.

Fragilaria brevistriata var. *inflata* (Pant.) Hust.

Fragilaria inflata Pantocsek, Res. Wiss. Erforsh. Balatonsees, vol. 2, p. 79, pl. 9, figs. 219-221. 1902.
Fragilaria brevistriata var. *inflata* (Pant.) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 145, fig. 152. 1930.

The valves of this entity are elliptic-lanceolate with rostrate to subcapitate ends. Other features as in the nominate variety.

238 FRBREVVI TCT NC OF [illegible]

146764	EV	17JL1927	0.01612)	146767	EV	27CC1937	0.00387)	(1260	P 2	6JL1964	C.CC191)
(1532	A 3	18SE1967	0.00329)	(1396	GS20	13MY1967	0.00370)	(1398	GS22	14MY1967	C.00304)
(1565	GS13	5CC1967	C.07699)	(1569	GS17	5CC1967	C.00349)	(1571	GS19	6CC1967	C.CC117)
(1522	BM 1	19SE1967	0.00182)	(1526	MO 1	20SE1967	0.00569)	(1530	PR 1	24SE1967	C.C1000)
(1549	MG 1	4DC1967	0.01370)	(1552	SM 1	6CC1967	C.01321)	(1550	MR 1	9DC1967	C.04936)
(1428	MU 2	29MY1967	0.00603)	(1426	MS 2	29MY1967	C.01050)	(1350	BM 2	19AP1967	C.01942)
(1404	MO 2	10MY1967	0.01270)	(							

Fragilaria capucina Desm.

Fragilaria capucina Desmazieres, Plant. Crypt. Nord France, 1st. ed., Fasc. 10, no. 453. 1825.

Cells rectangular, in life united into closely appressed, band-shaped colonies by the valve faces. Specimens from Lake Michigan 15-80μ long, 2-5μ broad. Valves linear with bluntly rounded, usually more or less cuneate apices. Striae perpendicular to the midline of the valve throughout its length, 14-18 in 10μ, without visible substructure. Pseudoraphe linear, narrow, at the center of the valve expanded into a transverse fascia sometimes extending to the margin of the valve. In specimens in which the fascia does not reach the margin of the valve it is irregularly bordered by indistinct striae.

In Lake Michigan this entity is common in collections from inshore areas, and occasional populations are found in collections from the open lake. Published reports indicate that it reaches its greatest abundance in mesotrophic to eutrophic lakes.

239 FFCAPLCI ICT NO OF STATIONS 318

160973	CH	1876	0.23618	3940	CH	11MY1875	C.04659	3541	CH	1FE1881	C.01956
3507	CH	19FE1881	0.05660	146510	CH	CC1945	C.04806	146921	CH	23NO1945	C.04656
146908	CH	CE1945	0.65458	146517	CH	12JA1946	C.03022	146915	CH	20FE1946	C.26177
146914	CH	19AP1946	0.07688	146524	CH	10MY1946	0.55026	146923	CH	22NO1946	1.77689
146920	CH	20DE1946	0.88114	146905	CH	JA1947	4.30200	146909	CH	MR1947	C.09562
146912	CH	AP1947	2.74807	146516	CH	4MY1947	C.01221	146906	CH	MY1947	C.47454
146919	CH	5JN1947	0.02124	146907	CH	JL1947	1.02568	146913	CH	6AU1947	5.10407
146922	CH	21AU1947	1.48055	146758	EV	5JN1937	C.22110	146771	EV	11JN1937	C.13214
146743	EV	20JN1937	2.15809	146745	EV	3JL1937	7.60711	146770	EV	9JL1937	4.56859
146764	EV	17JL1937	10.66435	146757	EV	25JL1937	2.29166	146747	EV	1AU1937	3.46560
146763	EV	23AU1937	0.60877	146765	EV	30AU1937	0.01115	146769	EV	7SE1937	C.08684
146752	EV	15SE1937	0.82717	146760	EV	22SE1937	1.10296	146750	EV	24SE1937	1.45167
146744	EV	6OC1937	1.91182	146748	EV	13OC1937	C.49103	146767	EV	27OC1937	C.43325
146749	EV	12MR1938	0.40053	146768	EV	16MR1938	C.58798	146762	EV	18MR1938	C.02206
146751	EV	30MR1938	0.02232	146772	EV	18AP1938	0.03549	146756	EV	27AP1938	C.01343
146759	EV	19MY1938	0.01013	146761	EV	27MY1938	C.19079	146766	EV	14DE1938	2.94677
1223	B 3	18MY1964	0.00938	1224	B 4	18MY1964	0.00352	1225	C 6	15MY1964	C.14112
1226	C 7	16MY1964	0.45282	1227	C* 2	13MY1964	0.09102	1228	D 2	14MY1964	C.12262
1229	D 5	14MY1964	0.11630	1230	E 2	16MY1964	C.48896	1232	E 5	16MY1964	C.07826
1233	B 3	5JN2964	0.04048	1234	B 3	18JN1964	C.21649	1235	C 7	16JN1964	C.72302
1439	B 6	5JN1964	0.10589	1236	C* 1	8JN1964	C.49009	1237	C* 2	8JN1964	C.16499
1238	D 3	11JN1964	0.09000	1239	D 4	11JN1964	C.20308	1240	D 6	10JN1964	C.08130
1241	E 4	13JN1964	0.51749	1242	E 3	13JN1964	C.00599	1243	E 6	13JN1964	C.07517
124	F 1	11JN1964	0.84427	1245	F 2	11JN1964	C.32501	1246	F 3	11JN1964	C.05379
1247	B 3	14JL1964	0.02561	1248	B 3	24JL1964	C.00788	1440	B 6	11JL1964	C.27269
1441	B 6	24JL1964	0.12996	1249	C 3	8JL1964	C.38023	1250	C 6	10JL1964	C.37410
1251	C 7	16JL1964	0.88076	1252	C* 1	16JL1964	0.35425	1253	C* 2	16JL1964	C.06673
1254	D 2	15JL1964	0.10151	1255	D 5	15JL1964	C.01797	1256	E 2	14JL1964	C.12823
1257	E 3	14JL1964	0.00957	1258	F 1	6JL1964	1.65184	1259	F 2	6JL1964	C.43381
1260	F 3	6JL1964	0.24830	1261	B 3	2AU1964	C.02747	1262	B 3	17AU1964	C.00840
1442	B 6	2AU1964	0.15353	1443	B 6	16AU1964	C.01581	1263	C 7	15AU1964	C.CC801
1264	C* 1	10AU1964	0.09654	1265	C* 2	10AU1964	C.06483	1266	D 3	18AU1964	C.01052
1267	D 6	18AU1964	0.03891	1268	E 2	15AU1964	C.03556	1269	E 3	15AU1964	C.CC822
1270	F 1	10AU1964	0.08713	1444	B 6	19SE1964	0.00303	1271	C 7	22SE1964	C.61370
1272	C* 1	10SE1964	0.30374	1273	C* 2	10SE1964	C.01075	1274	D 1	17SE1964	C.03284
1275	D 2	17SE1964	0.07096	1276	D 3	18SE1964	0.04470	1277	D 4	18SE1964	C.03718
1278	D 6	18SE1964	0.10377	1279	E 1	16SE1964	C.10995	1280	E 2	16SE1964	C.00681
1281	E 3	16SE1964	0.00785	1282	E 4	16SE1964	0.02216	1283	E 5	16SE1964	C.07969
1284	E 6	17SE1964	3.78102	1285	F 1	15SE1964	C.04659	1286	F 2	15SE1964	C.04378
1287	F 3	15SE1964	0.01501	1288	B 3	15OC1964	1.14284	1445	B 6	14OC1964	C.05871
1289	C 7	14OC1964	0.13632	1290	C* 1	16CC1964	2.91832	1291	C* 2	16CC1964	1.02735
1292	D 1	15OC1964	0.52177	1293	D 2	15CC1964	C.01415	1296	D 3	15OC1964	0.11867
1295	D 4	15OC1964	0.24379	1296	D 5	14OC1964	C.03147	1297	D 6	14OC1964	C.03998
1298	E 1	12OC1964	0.32044	1299	E 2	12OC1964	C.43984	1300	E 3	13OC1964	C.12529
1301	E 4	13OC1964	0.02208	1302	E 5	13OC1964	1.41712	1303	E 6	13CC1964	1.93903
1304	F 1	11OC1964	0.01235	1305	F 2	11CC1964	0.02588	1306	F 3	11OC1964	C.01109
1307	B 6	NO1964	0.08454	1308	C 7	6NO1964	C.11558	1309	C* 1	10NO1964	C.28139
1310	C* 2	10NO1964	0.20635	1311	D 1	8NO1964	C.22703	1312	D 2	8NC1964	C.43458
1313	D 3	9NO1964	0.02703	1314	D 4	9NC1964	0.03732	1315	D 5	9NO1964	C.C2730
1316	D 6	9NO1964	0.24176	1317	E 1	6NO1964	C.04021	1318	E 2	7NO1964	C.03995
1319	E 3	7NO1964	0.02356	1320	E 4	7NO1964	0.05171	1321	E 5	7NO1964	C.44491
1322	E 6	7NO1964	0.44656	1323	F 1	6NO1964	0.01254	1324	F 2	6NO1964	C.03028
1325	F 3	6NO1964	0.07053	1326	C 3	27JA1967	C.00578	1327	C 3	2MR1967	C.41153
1338	C 3	28MR1967	0.07405	1339	C 5	28MR1967	0.00624	1337	C 7	28MR1967	C.2C361
1341	A 3	19AP1967	0.05424	1342	A 4	19AP1967	0.00361	1360	C 7	19AP1967	C.15840
1344	C 3	25AP1967	0.02316	1345	C 5	25AP1967	0.00390	1363	A 6	21AP1967	C.11750
1347	E 2	23AP1967	0.00974	1348	E 5	23AP1967	0.04249	1346	C 7	4MY1967	C.C6598
1369	A 4	4MY1967	0.00745	1370	A 6	3MY1967	0.64449	1368	A 3	4MY1967	C.02539
1373	C 7	5MY1967	0.00570	1374	C 3	7MY1967	C.02092	1371	C 3	7MY1967	C.00241
1376	E 5	6MY1967	0.10962	1408	A 3	23MY1967	C.08049	1375	E 3	23MY1967	C.CC298
1410	A 6	24MY1967	0.19734	1411	C 3	31MY1967	C.03282	1409	A 4	31MY1967	C.CC842
1413	C 7	25MY1967	0.01895	1414	E 2	28MY1967	C.00336	1412	C 5	28MY1967	C.CC450
1416	E 5	28MY1967	0.03748	1431	A 3	12JN1967	0.12359	1415	E 3	13JN1967	C.C1533
1433	C 3	17JN1967	0.11626	1434	C 5	17JN1967	0.00598	1432	A 4	13JA1967	3.31513
1436	E 2	15JN1967	0.00724	1437	F 3	15JN1967	0.00538	1435	C 7	14JN1967	C.14887
1446	A 3	13JL1967	0.31065	1447	A 4	11JL1967	C.65494	1438	E 5	1CJL1967	4.85234
1449	C 3	16JL1967	0.15667	1450	C 5	16JL1967	0.00190	1448	A 6	16JL1967	14.74351
1452	E 2	14JL1967	4.47056	1453	E 3	15JL1967	0.01284	1451	C 7	15JL1967	2.8CC56
1504	A 3	28AU1967	0.12344	1506	A 6	29AU1967	2.74625	1454	E 5	25SE1967	C.01514
								1509	C 5		

(1510	C 7	29AU1967	0.11065)	(1511	E 2	15E1967	0.53719)	(1512	E 3	15E1967	0.24737)								
(1513	E 5	31AU1967	1.18577)	(1532	A 3	18SE1967	4.13915)	(1533	A 4	19SE1967	1.20230)								
(1534	A 6	19SE1967	4.77771)	(1535	C 7	20SE1967	2.59117)	(1536	E 2	24SE1967	0.35175)								
(1537	E 3	24SE1967	0.06038)	(1538	E 5	23SE1967	0.17124)	(1539	C 3	40C1967	1.72587)								
(1540	C 5	40C1967	C.66015)	(1541	E 2	11OC1967	2.60763)	(1542	E 3	11CC1967	C.CE611)								
(1543	E 5	10CC1967	0.35914)	(1377	GS 1	5MY1967	0.05541)	(1378	GS 2	9MY1967	C.18082)								
(1379	GS 3	9MY1967	2.38301)	(1380	GS 4	9MY1967	0.58853)	(1381	ES 5	10MY1967	C.61060)								
(1382	GS 6	10MY1967	0.38858)	(1383	GS 7	10MY1967	3.18114)	(1384	GS 8	10MY1967	C.64701)								
(1385	GS 9	10MY1967	1.64818)	(1386	GS10	12MY1967	1.00546)	(1387	GS11	12MY1967	1C.81274)								
(1388	GS12	12MY1967	15.62594)	(1389	GS13	12MY1967	53.24496)	(1390	GS14	12MY1967	43.15912)								
(1391	GS15	12MY1967	29.47527)	(1392	GS16	12MY1967	33.22340)	(1393	GS17	13MY1967	28.76396)								
(1394	GS18	13MY1967	49.6C951)	(1395	GS19	13MY1967	3E.47147)	(1396	GS2C	13MY1967	41.C7135)								
(1397	GS21	13MY1967	3C.9C396)	(1398	GS22	14MY1967	6.80086)	(1554	GS 1	30C1967	C.2E329)								
(1555	GS 2	30C1967	7.10946)	(1556	GS 3	30C1967	C.49017)	(1557	GS 4	3GC1967	C.06353)								
(1558	GS 5	4CC1967	C.25369)	(1559	GS 7	4CC1967	0.04896)	(1560	GS 8	40C1967	C.02834)								
(1561	GS 9	4OC1967	0.02935)	(1562	GS10	50C1967	C.03454)	(1563	GS11	50C1967	C.C6313)								
(1564	GS12	50C1967	0.32919)	(1565	GS13	50C1967	0.18254)	(1566	GS14	50C1967	C.7C629)								
(1567	GS15	5CC1967	1.11135)	(1568	GS16	5GC1967	1.41412)	(1569	GS17	5DC1967	6.8E754)								
(1570	GS18	50C1967	9.71837)	(1571	GS19	60C1967	44.00943)	(1572	GS20	60C1967	55.83495)								
(1573	GS21	60C1967	18.50C89)	(1574	GS22	6CC1967	0.04890)	(1575	GS28	60C1967	3E.6E718)								
(1544	MU 1	20C1967	0.38125)	(1547	MS 1	20C1967	0.74251)	(1524	PI 1	20SE1967	28.02101)								
(1546	LU 1	20C1967	0.88031)	(1520	MC 1	18SE1967	C.43849)	(1521	SM 1	18SE1967	C.92315)								
(1522	BM 1	18SE1967	0.01276)	(1523	RA 1	19SE1967	23.40863)	(1525	PM 1	20SE1967	5.79306)								
(1526	MO 1	2CSE1967	3.73215)	(1527	TR 1	20SE1967	1.30818)	(1528	SE 1	2GSE1967	3.23419)								
(1529	KW 1	2CSE1967	1.30711)	(1530	FR 1	24SE1967	C.35003)	(1531	GM 1	25SE1967	C.21133)								
(1545	WL 1	20C1967	2.05419)	(1548	CA 1	3CC1967	C.44524)	(1549	PQ 1	4OC1967	C.6578C)								
(1551	ES 1	5CC1967	8.17957)	(1552	SM 1	60C1967	7.28953)	(1550	PR 1	5DC1967	5.55074)								
(1553	SG 1	60C1967	8.92067)	(1428	MU 2	29MY1967	1.97656)	(1426	PS 2	29MY1967	5.71129)								
(1351	MI 2	21AP1967	C.89372)	(1427	LU 2	29MY1967	1.42857)	(1417	MO 2	22MY1967	8.13519)								
(1418	SH 2	22MY1967	27.37169)	(1350	BM 2	19AP1967	1.12773)	(1425	PA 2	25MY1967	13.43825)								
(1399	PN 2	5MY1967	5.22307)	(1401	MC 2	6MY1967	3.76293)	(1402	TR 2	6MY1967	5.8C463)								
(1400	SB 2	6MY1967	3.43102)	(1352	KW 2	21AP1967	7.69627)	(1353	FR 2	23AP1967	1.85654)								
(1354	GM 2	25AP1967	2.37508)	(1429	WL 2	29MY1967	8.49347)	(1403	CA 2	10MY1967	2.51079)								
(1404	MQ 2	10MY1967	13.82114)	(1405	ES 2	12MY1967	65.63467)	(1407	SM 2	14MY1967	31.81465)								
(1349	CI 2	19AP1967	1.14951)	(1406	GB 2	13MY1967	5.47783)	(1419	BU 2	23MY1967	5.56573)								
(1420	IM 2	23MY1967	7.97583)	(1421	CH 2	23MY1967	5.55170)	(1422	GA 2	23MY1967	5.23721)								
(1423	WA 2	25MY1967	25.89816)	(1424	KN 2	25MY1967	13.85558)	(1430	MC 2	12JN1967	1.55446)								

Fragilaria capucina var. *lanceolata* Grun.

Fragilaria capucina var. *lanceolata* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 45, fig. 5. 1881.

Valves elongate, lanceolate, evenly narrowed from near the center to the ends. Ends usually slightly capitate. Other features the same as in the nominate variety.

Although this entity has essentially the same distribution as the nominate variety in Lake Michigan, it is usually more abundant in offshore collections. As is true of many taxa in the genus, the shape of the valve is quite variable.

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(46910	CH	CE1945	0.00328)	(46921	CH	23DC1945	0.01681)	(46917	CH	12JA1946	0.02248)								
(46915	CH	20FE1946	0.18210)	(46914	CH	19AP1946	0.08669)	(46924	CH	10MY1946	C.41269)								
(46923	CH	22NO1946	2.20090)	(46920	CH	20DE1946	C.68090)	(46905	CH	JA1947	C.02451)								
(46909	CH	FR1947	0.02732)	(46912	CH	AP1947	0.05749)	(46916	CH	4MY1947	C.05497)								
(46906	CH	MY1947	0.03916)	(46919	CH	5JN1947	0.00607)	(46907	CH	JL1947	C.35258)								
(46913	CH	6AU1947	0.09413)	(46922	CH	21AU1947	0.34652)	(46758	EV	5JN1937	C.01426)								
(46771	EV	11JN1937	0.12125)	(46743	EV	20JN1937	C.26548)	(46770	EV	9JL1937	C.31C11)								
(46764	EV	17JL1937	0.03223)	(46757	EV	25JL1937	0.02407)	(46747	EV	1AU1937	C.15348)								
(46765	EV	30AU1937	0.34579)	(46769	EV	7SE1937	C.02171)	(46752	EV	15SE1937	C.02177)								
(46760	EV	22SE1937	1.15155)	(46750	EV	24SE1937	C.07541)	(46744	EV	6OC1937	C.6E275)								
(46767	EV	27CC1937	1.40807)	(46749	EV	12MR1938	C.8C107)	(46768	EV	16MR1938	C.04410)								
(46762	EV	18MR1938	0.26467)	(46751	EV	30MR1938	0.03350)	(46772	EV	18AP1938	C.12775)								
(46756	EV	27AP1938	0.02182)	(46755	EV	19MY1938	C.08778)	(46761	EV	27MY1938	C.71405)								
(1237	C* 2	8JN1964	0.01289)	(1234	B 3	18JN1964	C.00843)	(1439	B 6	5JN1964	C.00599)								
(1241	E 2	13JN1964	0.00296)	(1238	C 3	11JN1964	C.00400)	(1239	D 4	11JN1964	C.00232)								
(1245	F 2	11JN1964	C.00692)	(1243	E 6	13JN1964	C.C1670)	(1244	F 1	11JN1964	C.CC548)								
(1440	B 6	11JL1969	0.05528)	(1247	B 3	14JL1964	0.01281)	(1248	B 3	24JL1964	C.C1182)								
(1250	C 6	10JL1964	0.00822)	(1441	B 6	24JL1964	0.00441)	(1249	C 3	8JL1964	C.CC543)								
(1253	C* 2	16JL1964	0.00913)	(1251	C 7	16JL1964	C.04925)	(1252	C* 1	16JL1964	C.09484)								
(1256	E 2	14JL1964	0.00550)	(1254	D 2	15JL1964	0.01532)	(1255	D 5	15JL1964	C.00513)								
(1261	B 3	2AU1964	0.00196)	(1258	F 1	6JL1964	C.00708)	(1259	F 2	6JL1964	C.CC62C)								
(1264	C* 1	10AU1964	0.08109)	(1442	B 6	2AU1964	C.02047)	(1443	B 6	16AU1964	C.00198)								
(1267	D 6	18AU1964	0.00865)	(1265	C* 2	10AU1964	C.00894)	(1266	D 3	18AU1964	C.CC351)								
(1271	C 7	22SE1964	0.01306)	(1268	E 6	15AU1964	C.00547)	(1270	F 1	10AU1964	C.0C272)								
(1283	E 5	16SE1964	0.01226)	(1272	C* 1	10SE1964	C.CC410)	(1282	E 4	16SE1964	C.C1108)								
(1289	C 7	14OC1964	0.02199)	(1288	B 3	15OC1964	C.01306)	(1445	B 6	14OC1964	C.C4566)								
(1292	D 1	15OC1964	0.00373)	(1290	C* 1	16OC1964	C.00379)	(1291	C* 2	16OC1964	C.CC734)								
(1296	D 5	14OC1964	0.01180)	(1293	D 2	15OC1964	0.01415)	(1294	D 3	15OC1964	C.CC659)								
(1300	E 9	13OC1964	0.01432)	(1298	E 1	12CC1964	C.00269)	(1299	E 2	12OC1964	C.C1885)								
				(1301	E 4	13CC1964	C.00883)	(1302	E 5	13OC1964	C.C0810)								

(1303	E 6	13DC1964	0.02239)	(1305	F 2	11DC1964	0.00173)	(1308	C 7	6ND1964	C.02433)			
(1310	C* 2	10ND1964	0.00227)	(1312	D 2	8ND1964	C.00621)	(1316	D 6	9ND1964	C.00756)			
(1317	E 1	6ND1964	0.00766)	(1318	E 2	7ND1964	C.00380)	(1320	E 4	7ND1964	C.00620)			
(1321	E 5	7ND1964	C.00638)	(1322	E 6	7ND1964	0.02999)	(1323	F 1	6ND1964	C.00557)			
(1324	F 2	6ND1964	0.00695)	(1337	C 3	2MR1967	0.00294)	(1339	C 5	28MR1967	0.00312)			
(1340	C 7	28MR1967	C.00073)	(1343	A 6	19AP1967	0.00208)	(1375	E 3	7MY1967	C.00241)			
(1414	E 2	28MY1967	0.00336)	(1448	A 6	10JL1967	0.01061)	(1454	E 5	15JL1967	C.00800)			
(1533	E 3	1SE1967	0.00393)	(1532	A 3	18SE1967	C.00329)	(1533	A 4	19SE1967	0.00928)			
(1535	C 7	20SE1967	0.00322)	(1536	E 2	24SE1967	0.00818)	(1541	E 2	11DC1967	C.00532)			
(1542	E 3	11DC1967	0.01017)	(1380	GS 4	9MY1967	C.00504)	(1554	GS 1	3DC1967	C.01067)			
(1563	GS11	5DC1967	0.00234)	(1569	GS17	5DC1967	0.00149)	(1571	GS19	6DC1967	0.00410)			
(1572	GS20	6DC1967	0.CC27C)	(1573	GS21	6CC1967	0.00112)	(1547	PS 1	20C1967	C.C2992)			
(1522	BH 1	18SE1967	0.00182)	(1526	MD 1	20SE1967	0.01138)	(1529	MW 1	20SE1967	0.01199)			
(1548	CA 1	3DC1967	C.05088)	(1552	SM 1	6CC1967	0.03962)	(1553	SG 1	6DC1967	C.CC734)			
(1428	MU 2	29MY1967	0.02109)	(1417	MD 2	22MY1967	0.01122)	(1418	SM 2	22MY1967	C.07776)			
(1350	BH 2	15AP1967	0.11674)	(1352	MW 2	21AP1967	C.24910)	(1354	WM 2	25AP1967	C.0C345)			
(1429	WL 2	29MY1967	0.19110)	(1407	SM 2	14MY1967	0.04180)	(1349	CI 2	19AP1967	C.0C359)			
(1406	CB 2	13MY1967	0.02696)	(										

Fragilaria capucina var. *mesolepta* Rabh.

Fragilaria capucina var. *mesolepta* Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 118. 1864.

Valves constricted at the central area, either linear or slightly expanded between the central area and the ends. The central area is usually a hyaline fascia. Ends of the valves rostrate to subcapitate. Size range and ornamentation of the valve the same as in the nominate variety.

The distribution and abundance of this entity in Lake Michigan is essentially the same as for the nominate variety.

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(3560	CH	11MY1879	0.02796)	(3507	CH	15FE1881	0.04528)	(46910	CH	OC1945	C.CC218)
(46921	CH	23ND1945	C.00453)	(46508	CH	DE1945	C.01007)	(46917	CH	12JA1946	C.00083)
(46914	CH	19AP1946	0.CC214)	(46524	CH	10MY1946	C.C0282)	(46923	CH	22ND1946	C.CC437)
(46920	CH	20DE1946	0.00092)	(46505	CH	MR1947	0.02277)	(46912	CH	AP1947	C.C3449)
(46916	CH	4MY1947	0.00204)	(46506	CH	MY1947	C.00066)	(46919	CH	5JN1947	0.00759)
(46907	CH	JL1947	0.00444)	(46513	CH	6AU1947	C.01046)	(46922	CH	21AU1947	C.00097)
(46758	EV	5JN1937	C.07489)	(46771	EV	11JN1937	C.C0238)	(46743	EV	20JN1937	C.26548)
(46745	EV	3JL1937	0.06270)	(46770	EV	9JL1937	C.31011)	(46764	EV	17JL1937	1.49879)
(46757	EV	25JL1937	C.24553)	(46747	EV	1AU1937	0.69312)	(46760	EV	22SE1937	C.CC985)
(46748	EV	13DC1937	0.1C675)	(46749	EV	12MR1938	C.02427)	(46768	EV	16MR1938	C.C1470)
(46756	EV	27AP1938	0.00672)	(46759	EV	19MY1938	C.00338)	(1224	B 4	18MY1964	C.CC196)
(1226	C 7	16MY1964	0.01142)	(1227	C* 2	13MY1964	C.00439)	(1228	D 2	14MY1964	C.CC584)
(1230	E 2	16MY1964	0.01185)	(1232	E 5	16MY1964	C.00348)	(1233	B 3	5JN2964	C.CC238)
(1234	B 3	18JN1964	0.00562)	(1239	B 6	5JN1964	0.00599)	(1236	C* 1	8JN1964	C.12952)
(1237	C* 2	8JN1964	0.00516)	(1244	D 4	11JN1964	C.00232)	(1241	E 2	13JN1964	C.0C296)
(1243	E 6	13JN1964	0.01253)	(1441	F 1	11JN1964	C.00877)	(1245	F 2	11JN1964	C.01037)
(1246	F 3	11JN1964	0.00598)	(1259	B 6	24JL1964	0.00220)	(1249	C 3	8JL1964	C.03802)
(1252	C* 1	16JL1964	C.0C279)	(1253	C* 2	16JL1964	0.00228)	(1254	D 2	15JL1964	C.0C192)
(1258	F 1	6JL1964	0.03540)	(1259	F 2	6JL1964	0.01239)	(1260	F 3	6JL1964	0.01719)
(1262	B 3	17AU1964	0.C0210)	(1264	C* 1	10AU1964	0.00579)	(1265	C* 2	10AU1964	C.0C224)
(1268	E 2	15AU1964	0.00274)	(1270	F 1	10AU1964	0.00272)	(1279	E 1	16SE1964	0.00785)
(1283	E 5	16SE1964	0.00619)	(1284	E 6	17SE1964	C.00635)	(1288	B 3	15DC1964	C.03701)
(1289	C 7	14DC1964	0.CC440)	(1290	C* 1	18CC1964	0.03411)	(1291	C* 2	16DC1964	C.22993)
(1292	D 1	15CC1964	C.02609)	(1294	D 3	15CC1964	C.00659)	(1298	E 1	12DC1964	0.02154)
(1299	E 2	12DC1964	0.09739)	(1300	E 3	13DC1964	C.02148)	(1301	E 4	13DC1964	C.01325)
(1302	E 5	13DC1964	0.02429)	(1303	E 6	13CC1964	C.03918)	(1304	F 1	11DC1964	C.0C247)
(1305	F 2	11CC1964	0.00863)	(1306	F 3	11CC1964	C.00277)	(1307	B 6	ND1964	C.01082)
(1308	C 7	6ND1964	0.00912)	(1309	C* 1	10NC1964	0.01286)	(1310	C* 2	10ND1964	0.01134)
(1311	D 1	8ND1964	C.02084)	(1312	D 2	8ND1964	0.01862)	(1313	D 3	9ND1964	C.0C386)
(1316	D 6	9ND1964	0.00756)	(1318	E 2	7ND1964	C.00380)	(1320	E 4	7ND1964	C.00414)
(1321	E 5	7ND1964	C.01915)	(1322	E 6	7ND1964	0.01666)	(1329	F 2	6ND1964	C.CC466)
(1337	C 3	2MR1967	0.00147)	(1338	C 3	28MR1967	0.00397)	(1341	A 3	19AP1967	C.00217)
(1343	A 6	19AP1967	C.00069)	(1370	A 6	3MY1967	0.CC230)	(1375	E 3	7MY1967	C.0C241)
(1376	E 5	6MY1967	0.00582)	(1410	A 6	24MY1967	0.00584)	(1416	E 5	28MY1967	C.0C219)
(1435	C 7	13JN1967	0.00316)	(1447	A 4	11JL1967	C.00234)	(1448	A 6	10JL1967	C.02122)
(1449	C 3	16JL1967	C.01146)	(1451	C 7	16JL1967	0.03543)	(1452	E 2	14JL1967	C.01277)
(1454	E 5	15JL1967	0.01400)	(1511	E 2	1SE1967	C.00614)	(1532	A 3	18SE1967	C.00657)
(1533	A 4	19SE1967	0.00928)	(1534	A 6	19SE1967	0.01861)	(1535	C 7	20SE1967	C.00644)
(1536	E 2	24SE1967	0.01091)	(1538	E 5	23SE1967	C.00552)	(1541	E 2	11DC1967	C.02661)
(1378	GS 2	9MY1967	0.00841)	(1379	GS 3	9MY1967	0.05261)	(1380	GS 4	9MY1967	C.00841)
(1382	GS 5	10MY1967	0.00477)	(1382	GS 6	10MY1967	0.00555)	(1383	GS 7	10MY1967	C.01069)
(1384	GS 8	10MY1967	0.00185)	(1385	GS 9	10MY1967	0.00471)	(1386	GS1C	12MY1967	E.01149)
(1387	GS11	12MY1967	0.01586)	(1388	GS12	12MY1967	0.04223)	(1389	GS13	12MY1967	0.32746)
(1390	GS14	12MY1967	0.20552)	(1391	GS15	12MY1967	0.06704)	(1392	GS16	12MY1967	C.02157)
(1393	GS17	13MY1967	0.17532)	(1396	GS18	13MY1967	C.12041)	(1395	GS19	13MY1967	C.25836)
(1396	GS20	13MY1967	0.12652)	(1397	GS21	13MY1967	C.04578)	(1398	GS22	14MY1967	C.02125)
(1556	GS 3	3DC1967	C.00521)	(1564	GS12	5DC1967	0.00329)	(1567	GS15	5DC1967	C.0C318)
(1568	GS16	5DC1967	0.00577)	(1569	GS17	5DC1967	C.00743)	(1570	GS18	5DC1967	C.02975)

(1571	GS19	6OC1967	0.20489)	(1572	GS20	6OC1967	1.13563)	(1573	GS21	6OC1967	C.10527)
(1574	GS22	6OC1967	0.00575)	(1575	GS28	6CC1967	0.12128)	(1544	MU 1	2OC1967	C.02621)
(1547	MS 1	2OC1967	0.01597)	(1524	MI ?	2OSE1967	C.02189)	(1546	LU 1	2CC1967	C.03501)
(1526	MO 1	2OSE1967	0.01707)	(1530	FR 1	24SE1967	0.04000)	(1531	GH 1	25SE1967	C.02536)
(1545	ML 1	2OC1967	0.04730)	(1548	CA 1	3CC1967	C.01272)	(1549	PQ 1	4OC1967	C.21927)
(1551	ES 1	5OC1967	0.03195)	(1550	MR 1	5OC1967	0.09912)	(1553	SG 1	6OC1967	C.02203)
(1428	MU 2	29MY1967	0.22297)	(1426	MS 2	29MY1967	C.16798)	(1427	LU 2	29MY1967	C.06053)
(1417	MO 2	22MY1967	0.07851)	(1418	SH 2	22MY1967	0.17107)	(1350	BH 2	19AP1967	C.08590)
(1401	MQ 2	6MY1967	0.01176)	(1353	FR 2	23AP1967	0.02110)	(1354	CH 2	25AP1967	C.05523)
(1429	ML 2	29MY1967	0.55208)	(1404	MQ 2	10MY1967	0.07622)	(1405	ES 2	12MY1967	C.13545)
(1406	GB 2	13MY1967	0.11592)	(1423	MA 2	25MY1967	0.00428)	(			

Fragilaria construens (Ehr.) Grun.

Staurosira construens Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:424. 1843.
Fragilaria construens (Ehr.) Grunow, Verh. Zool. Bot. Ges. Wien, 12:371. 1862.

Cells in girdle view rectangular, joined by the valve faces into long, closely appressed, band-shaped colonies. Specimens from Lake Michigan 5-25μ long, 4-12μ broad. Valves short, lanceolate with strongly inflated central portion and protracted, subcapitate to capitate ends. In girdle view of the colony the sharp expansion of the valve appears as a line, or a double line, depending on the level of focus, running the length of the colony. Striae slightly radiate throughout the length of the valve, in the more robust specimens finely lineate, 14-18 in 10μ. Pseudoraphe variable in shape, in some specimens very narrowly lanceolate and sharply bordered, in others more broadly lanceolate and indistinctly bordered. No specially differentiated central area is present.

Specimens of this taxon from Lake Michigan are highly variable, both in the shape of the valve and in the structure of the striae. Many populations approach closely the form of the smaller size range of *F. inflata* (Heid.) Hust. but specimens of larger size, clearly referrable to that taxon, have never been found in our collections. Further research may show that the specimens treated under this epithet actually represent a complex of similar forms, but such distinctions cannot be made in our material. Large populations are rare in Lake Michigan and the forms present grade into one another so subtly that no distinctions can be made. Published reports indicate that this entity reaches its greatest abundance in eutrophic lakes. Most of our reports come from inshore areas that are appreciably eutrophied.

242 FRCONSTR ICT NC CF STATIONS 48

(60973	CH	1876	0.04724)	(3541	CH	1FE1881	C.00978)	(46923	CH	22NO1946	C.00219)
(46920	CH	20DE1946	0.00185)	(46522	CH	21AU1947	0.00194)	(46758	EV	5JN1937	C.00357)
(45763	EV	23AU1937	0.02029)	(46756	EV	27AP1938	0.00168)	(1236	C* 1	8JN1964	C.00175)
(1243	E 6	13JN1964	0.00209)	(1264	C* 1	10AU1964	0.00193)	(1272	C* 1	10SE1964	C.00821)
(1279	E 1	16SE1964	0.00785)	(1287	F 3	15SE1964	0.00500)	(1293	D 2	15OC1964	C.00472)
(1341	A 3	19AP1967	0.00325)	(14C8	A 3	23MY1967	0.00447)	(1536	E 2	24SE1967	C.00273)
(1388	GS12	12MY1967	0.00603)	(1396	GS20	13MY1967	C.01036)	(1397	GS21	13MY1967	C.00065)
(1555	GS 2	3OC1967	0.00706)	(1569	GS17	5OC1967	0.00149)	(1571	GS19	6OC1967	0.00117)
(1572	GS20	6OC1967	0.01532)	(1573	GS21	6CC1967	0.00336)	(1574	GS22	6OC1967	C.01726)
(1575	GS28	6CC1967	0.00387)	(1544	MU 1	2CC1967	C.00715)	(1546	LU 1	2OC1967	C.00001)
(1521	SH 1	18SE1967	0.00577)	(1522	BH 1	18SE1967	0.00547)	(1527	TR 1	20SE1967	C.03145)
(1529	KW 1	2OSE1967	0.02398)	(1530	FR 1	24SE1967	C.01000)	(1545	ML 1	2OC1967	C.10812)
(1552	SM 1	6CC1967	0.02641)	(1550	MR 1	5OC1967	1.58592)	(1553	SG 1	6CC1967	C.00734)
(1428	MU 2	29MY1967	0.00301)	(1426	MS 2	29MY1967	0.05249)	(1417	MO 2	22MY1967	C.01122)
(1350	BH 2	19AP1967	0.16519)	(1402	TR 2	6MY1967	C.00541)	(1354	CH 2	25AP1967	C.00690)
(1404	MQ 2	10MY1967	0.02541)	(1407	SM 2	14MY1967	C.02986)	(1349	CI 2	19AP1967	C.00359)

Fragilaria construens var. *binodis* (Ehr.) Grun.

Fragilaria ? binodis Ehrenberg, Mikrogeol., pl. 5(2), fig. 26; pl. 6(1), fig. 43; pl. 11, fig. 15. 1854.
Fragilaria construens var. *binodis* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:371. 1862.

Valves biundulate with constricted midportions and protracted, rostrate to subcapitate ends. Size range and ornamentation of the valve surface the same as in the nominate variety. Valves often more or less asymmetric, strongly constricted on one side and somewhat less constricted to nearly parallel on the other.

Published reports indicate that this entity has about the same distribution range as the nominate variety. Asymmetric forms appear to be most common in highly eutrophied habitats.

243 FRCONSVB TOT NO OF STATIONS 65

(3541	CH	1FE1881	0.01956)	(46747	EV	1AU1937	0.00248)	(1245	F 2	11JN1964	C.CC346)
(1264	C* 1	10AU1964	0.00772)	(1270	F 1	10AU1964	0.00272)	(1279	E 1	16SE1964	C.01178)
(1285	F 1	15SE1964	0.00582)	(1304	F 1	110C1964	0.00247)	(1305	F 2	110C1964	C.CC345)
(1306	F 3	110C1964	0.00554)	(1324	F 2	6NO1964	0.00233)	(1330	C 3	28MR1967	0.00132)
(1341	A 3	19AP1967	0.00542)	(1342	A 4	19AP1967	0.00361)	(1532	A 3	18SE1967	C.CC657)
(1536	E 2	24SE1967	0.00818)	(1541	E 2	110C1967	0.00532)	(1387	GS11	12MY1967	C.CC396)
(1388	GS12	12MY1967	0.00603)	(1389	GS13	12MY1967	C.00258)	(1391	GS15	12MY1967	C.CC479)
(1392	GS16	12MY1967	0.01541)	(1394	GS18	13MY1967	0.00344)	(1395	GS19	13MY1967	C.CC117)
(1396	GS20	13MY1967	0.00592)	(1554	GS 1	30C1967	0.00356)	(1558	GS 5	40C1967	C.05946)
(1561	GS 9	40C1967	0.00587)	(1565	GS13	50C1967	C.03042)	(1566	GS14	50C1967	C.00183)
(1567	GS15	50C1967	0.C1429)	(1568	GS16	50C1967	0.01299)	(1569	GS17	50C1967	C.01189)
(1571	GS19	60C1967	0.00234)	(1572	GS20	60C1967	C.03064)	(1574	GS22	60C1967	C.04315)
(1575	GS28	60C1967	0.02193)	(1544	MU 1	20C1967	C.06434)	(1546	LU 1	20C1967	C.03001)
(1520	MD 1	18SE1967	0.09901)	(1521	SH 1	18SE1967	C.04616)	(1522	BH 1	18SE1967	C.CC365)
(1526	MD 1	20SE1967	0.14792)	(1527	TR 1	20SE1967	6.13836)	(1528	SB 1	20SE1967	C.02888)
(1529	KW 1	2CSE1967	0.17988)	(1530	FR 1	24SE1967	0.08001)	(1531	GH 1	25SE1967	C.05072)
(1545	WL 1	20C1967	20.43381)	(1549	MQ 1	40C1967	0.01370)	(1552	SM 1	60C1967	C.01321)
(1550	MR 1	50C1967	0.35931)	(1553	SG 1	60C1967	0.02203)	(1428	PU 2	29MY1967	0.00904)
(1426	MS 2	29MY1967	0.02100)	(1427	LU 2	29MY1967	0.02421)	(1417	MD 2	22MY1967	C.06729)
(1418	SH 2	22MY1967	0.07776)	(1350	BH 2	19AP1967	2.11674)	(1401	PD 2	6MY1967	0.01764)
(1353	FR 2	23AP1967	0.01055)	(1354	GH 2	25AP1967	C.01036)	(1404	PQ 2	10MY1967	C.02541)
(1407	SM 2	14MY1967	0.00557)	(1406	GB 2	13MY1967	0.00539)	(			

Fragilaria construens var. *capitata* Hérib.

Fragilaria construens var. *capitata* Héribaud, Diat. Auvergne, p. 144, pl. 1, fig. 2. 1893.

Valves linear-lanceolate with protracted, capitate ends, occasionally slightly constricted near the middle of the valve. Specimens from Lake Michigan 12-30μ long, 4-7μ broad, striae 14-16 in 10μ. Ornamentation of the valve surface the same as in the nominate variety.

244 FRCONSVC TOT NO OF STATIONS 12

(3541	CH	1FE1881	0.01956)	(1274	D 1	17SE1964	0.00469)	(1279	E 1	16SE1964	C.02356)
(1382	GS 6	10MY1967	0.00278)	(1352	GS16	12MY1967	C.00925)	(1396	GS20	13MY1967	C.CCC74)
(1554	GS 1	30C1967	0.00712)	(1559	GS 7	40C1967	0.00350)	(1571	GS19	60C1967	C.CCC59)
(1350	BH 2	19AP1967	0.CC22C)	(1354	GH 2	25AP1967	0.00173)	(1404	PQ 2	10MY1967	C.C127C)

Fragilaria construens var. *minuta* Temp. and Per.

Fragilaria construens var. *minuta* Tempere and Peragallo, Diat. Monde Entier, ed. I, no. 89. 1889.

Very small form, only 4-10μ long and 2-3μ broad. Valves elliptical-lanceolate in shape and striae finer than in the nominate variety, 16-20 in 10μ.

Although uncommon in modern collections, this entity is abundant in some subfossil material from the upper Great Lakes region. It is the same entity that we (Stoermer and Yang 1968) reported as an undetermined species abundant in Lake Huron sediments. Andrews (1966) reported entities under the name *F. construens* var. *venter* in the same size range. While it is conceivable that the range of variation in the above entity may include our specimens, it appears to us that the consistently narrower valves and the finer striae are sufficiently distinctive characteristics to separate the two taxa.

267 FRSPECCB TCT NC CF STATICNS 14

146910	CH		0C1945	0.00109	146515	CH		20FE1946	0.00569	146906	CH		MY1947	0.CC133
146758	EV		5JN1937	0.00713	146763	EV		23AU1937	0.04058	146768	EV		16MR1938	0.01470
146762	EV		18MR1938	0.02206	1260	F	3	6JL1964	0.00191	1268	E	2	15AU1964	0.CC274
1270	F	1	10AU1964	0.00272	1285	F	1	15SE1964	0.01165	1305	F	2	110C1964	0.CC173
1341	A	3	19AP1967	0.00217	1346	C	7	21AP1967	0.00267					

Fragilaria construens var. *pumila* Grun.

Fragilaria construens var. *pumila* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 45, fig. 21a. 1881.

Valves elliptic-lanceolate to lanceolate with somewhat protracted, rostrate apices. Size range and oranmentation of the valve surface the same as in the nominate variety.

245 FRCONSVP TCT NC OF STATICNS 24

3541	CH		1FE1881	0.04891	146747	EV		1AU1937	0.00248	146763	EV		23AU1937	C.C2029
146750	EV		24SE1937	0.00471	1264	C	1	1CAU1964	0.00193	1304	F	1	110C1964	0.00494
1341	A	3	19AP1967	0.00108	1533	A	4	19SE1967	C.00464	1536	E	2	24SE1963	C.CC273
1537	E	3	24SE1967	0.00431	1574	GS22		6DC1967	0.00288	1544	PU	1	20C1963	C.CC715
1520	MD	1	18SE1967	0.00471	1522	BH	1	18SE1967	C.00365	1527	TR	1	2CSE1967	C.C1258
1529	KM	1	20SE1967	0.01199	1531	GM	1	25SE1967	0.01691	1545	NL	1	20C1967	C.C5406
1550	MR	1	5DC1967	0.02478	1553	SG	1	6DC1967	C.00734	1428	PU	2	29MY1967	C.CC904
1417	MD	2	22MY1967	0.00374	1350	BH	2	19AP1967	0.04185	1354	CH	2	25AP1967	C.CC345

Fragilaria construens var. *subsalina* Hust.

Fragilaria construens var. *subsalina* Hustedt, Mitt. geogr. Ges., Naturhist. Mus. Lübeck, 2 Reihe, 30:106, fig. 5-8. 1925.

Valves linear with parallel sides and cuneate, in the larger specimens somewhat protracted, ends. Size range and ornamentation of the valve surface as in the nominate variety.

247 FRCONSVA TCT NC OF STATICNS 9

160973	CH		1876	0.02362	146758	EV		5JN1937	C.01070	146762	EV		18MR1938	C.02206
1279	E	1	16SE1964	0.00785	1341	A	3	19AP1967	0.00108	1569	GS17		5DC1967	C.00149
1550	MR	1	5DC1967	0.01239	1350	BH	2	19AP1967	0.00220	1404	PO	2	10MY1967	C.02541

Fragilaria construens var. *venter* (Ehr.) Grun.

Fragilaria venter Ehrenberg, Mikrogeol., pl. 14, fig. 50. 1854.
Fragilaria construens var. *venter* (Ehr.) Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 45, figs. 21b, 22, 23, 24b, 26a-b. 1881.

Valves rhombic-elliptical to elliptical with somewhat protracted, rostrate ends. Maximum length of specimens from Lake Michigan does not exceed 10μ. Ornamentation of the valve surface essentially similar to that of the nominate variety.

246 FRCONSVV TCT NC OF STATICNS 71

3540	CH		11MY1879	0.00466	3541	CH		1FE1E81	C.CC578	146917	CH		12JA1946	C.CC083
146915	CH		20FE1946	0.00569	146523	CH		22ND1946	0.00219	146920	CH		20DE1946	C.CC031
146905	CH		JA1947	0.00123	146516	CH		4MY1947	C.00068	146919	CH		5JN1947	C.CC303
146907	CH		JL1947	C.00049	146522	CH		21AU1947	C.00388	146758	EV		5JN1937	C.01426
146771	EV		11JN1937	C.CC238	146743	EV		20JN1937	C.CC428	146764	EV		17JL1937	C.C4835
146747	EV		1AU1937	0.01238	146752	EV		15SE1937	C.02177	146750	EV		24SE1937	C.CC943
146748	EV		13DC1937	0.04270	146767	EV		27DC1937	C.01547	146768	EV		16MR1938	C.C8820
146762	EV		18MR1938	0.02206	1274	C	1	17SE1964	C.00469	1279	E	1	16SE1964	C.CC785
1284	E	6	17SE1964	0.00318	1291	C	2	16CC1964	C.00245	1297	D	6	14DC1964	C.CC381
1303	E	6	13DC1964	0.01119	1322	E	6	7ND1964	0.00333	1340	C	7	28MR1967	C.00145
1376	E	2	7MY1967	0.00598	1452	E	2	14JL1967	0.00213	1537	E	3	24SE1967	C.CC431
1538	E	5	23SE1967	0.07181	1541	E	2	11CC1967	C.00532	1383	GS	7	10MY1967	C.00535
1387	GS11		12MY1967	0.00396	1392	GS16		12MY1967	C.00308	1394	GS18		13MY1967	C.CC344
1396	GS20		13MY1967	0.00148	1398	GS22		14MY1967	C.00607	1557	GS	4	3DC1967	C.CC374
1559	GS	7	4DC1967	0.00350	1561	GS	9	4CC1967	C.00587	1563	GS11		5DC1967	C.CC234
1566	GS14		5DC1967	0.00183	1567	GS15		5DC1967	C.00476	1572	GS20		6DC1967	C.CC180
1574	GS22		6DC1967	0.31065	1575	GS28		6DC1967	C.00129	1544	PU	1	20C1967	C.0166A

(1521	SH 1	18SE1967	0.01154)	(1523	MA 1	19SE1967	0.01845)	(1526	PO 1	20SE1967	C.15930)		
(1527	IR 1	20SE1967	0.13036)	(1528	SB 1	20SE1967	0.07219)	(1529	RW 1	20SE1967	C.07195)		
(1545	WL 1	20DC1967	0.04730)	(1552	SM 1	6DC1967	0.15847)	(1550	PR 1	5DC1967	C.C8673)		
(1553	SG 1	6DC1967	0.03672)	(1417	MO 2	22MY1967	0.00374)	(1350	BH 2	19AP1967	C.03744)		
(1399	PW 2	5MY1967	0.01360)	(1401	MO 2	6MY1967	0.03528)	(1402	TR 2	6MY1967	C.04873)		
(1352	KW 2	21AP1967	0.04295)	(1404	MO 2	10MY1967	0.02541)	(1405	ES 2	12MY1967	C.00645)		
(1407	SH 2	14MY1967	0.37619)	(1349	CI 2	19AP1967	0.00359)	(					

Fragilaria crotonensis Kitton

Fragilaria crotonensis Kitton, Sci. Gossip, 5:110, fig. 81. 1869.

Cells in girdle view lanceolate, with blunt ends and expanded central portions. Cells joined by valve faces of the expanded central portion into long, ribbon-shaped colonies. Specimens from Lake Michigan 40-112μ long and 2-4μ broad at the widest part of the valve. Valves very elongate, spindle-shaped, with expanded central portion, tapering gradually to near the apices which are bluntly rounded to subcapitate. Pseudoraphe very narrow, linear. In most specimens a central area is present in the form of a broad transverse fascia. In some specimens this area is indistinctly bordered by partially developed striae and in some specimens, particularly in the smaller size range, the central area is entirely lacking. The striae are indistinct and sometimesirregular 12-16 in 10μ.

240 FRACTION ICT NO OF STATIONS 320

(60973	CH	1876	44.63863)	(3540	CH	11MY1879	12.27228)	(3541	CH	1FE1881	6.72992)		
(3507	CH	19FE1881	10.98030)	(46510	CH	OC1945	12.38913)	(46921	CH	23NO1945	23.28799)		
(46508	CH	DE1945	12.10473)	(46517	CH	12JA1946	11.73145)	(46915	CH	20FE1948	17.38461)		
(46914	CH	19AP1946	11.97185)	(46524	CH	10MY1946	10.38574)	(46923	CH	22NO1946	34.66364)		
(46920	CH	20DE1946	71.07423)	(46505	CH	JA1947	42.78098)	(46909	CH	MR1947	8.43313)		
(46912	CH	AP1947	36.24237)	(46516	CH	MY1947	16.25369)	(46906	CH	MY1947	14.32250)		
(46919	CH	5JN1947	16.66893)	(46507	CH	JL1947	30.03308)	(46913	CH	6AU1947	76.14265)		
(46922	CH	21AU1947	35.53409)	(46758	EV	5JN1937	9.28007)	(46771	EV	11JN1937	12.64799)		
(46743	EV	20JN1937	20.98141)	(46745	EV	3JL1937	28.67293)	(46770	EV	9JL1937	28.38739)		
(46764	EV	17JL1937	29.55681)	(46757	EV	25JL1937	43.94588)	(46747	EV	1AU1937	55.24171)		
(46763	EV	23AU1937	32.38635)	(46765	EV	30AU1937	29.82710)	(46769	EV	7SE1937	55.92705)		
(46752	EV	15SE1937	40.83586)	(46760	EV	22SE1937	45.21954)	(46750	EV	24SE1937	42.75816)		
(46744	EV	6CC1937	56.67186)	(46748	EV	13CC1937	2.86C8C)	(46767	EV	27DC1937	6E.45383)		
(46749	EV	12MR1938	36.70348)	(46768	EV	16MR1938	9.87799)	(46762	EV	18MR1938	9C.63960)		
(46751	EV	30MR1938	13.44350)	(46772	EV	18AP1938	12.12207)	(46756	EV	27AP1938	7.8C429)		
(46755	EV	19MY1938	5.19919)	(46761	EV	27MY1938	32.58475)	(46766	EV	14DE1938	33.26996)		
(1223	B 3	18MY1964	2.51582)	(1224	B 4	18MY1964	1.64690)	(1225	C 6	15MY1964	7.13446)		
(1226	C 7	16MY1964	10.12177)	(1227	C° 2	13MY1964	6.83189)	(1228	D 2	14MY1964	3.4C606)		
(1229	D 5	14MY1964	11.98960)	(1230	E 2	16MY1964	6.84546)	(1231	E 3	16MY1964	2.36703)		
(1232	E 5	18MY1964	6.88727)	(1233	B 3	5JN2964	16.33682)	(1234	B 3	18JN1964	26.51452)		
(1235	C 7	18JN1964	22.93330)	(1439	B 6	5JN1964	14.31369)	(1236	C° 1	8JN1964	11.76223)		
(1237	C° 2	8JN1964	15.33900)	(1238	D 3	11JN1964	3.22000)	(1239	D 4	11JN1964	6.C9225)		
(1240	D 6	10JN1964	8.16063)	(1241	E 2	13JN1964	8.27986)	(1242	E 3	13JN1964	C.41963)		
(1243	E 6	13JN1964	8.91589)	(1244	F 1	11JN1964	27.78416)	(1245	F 2	11JN1964	14.52182)		
(1246	F 3	11JN1964	14.22339)	(1247	B 3	14JL1964	24.50163)	(1248	B 3	24JL1964	27.C3554)		
(1440	B 6	11JL1964	15.78656)	(1441	B 6	24JL1964	12.58838)	(1249	C 3	8JL1964	14.62878)		
(1250	C 6	10JL1964	12.26310)	(1251	C 7	16JL1964	11.82282)	(1252	C° 1	10JL1964	16.55508)		
(1253	C° 2	16JL1964	16.82947)	(1254	D 2	15JL1964	1C.24899)	(1255	D 5	15JL1964	5.45793)		
(1256	E 2	14JL1964	5.43160)	(1257	E 3	14JL1964	2.17729)	(1258	F 1	6JL1964	37.62181)		
(1259	F 2	6JL1964	29.48996)	(1260	F 3	6JL1964	25.25545)	(1261	B 3	2AU1964	42.31100)		
(1262	B 3	17AU1964	62.32675)	(1442	B 6	2AU1964	26.62914)	(1443	B 6	18AU1964	57.23322)		
(1263	C 7	15AU1964	54.92393)	(1264	C° 1	10AU1964	20.67886)	(1265	C° 2	10AU1964	40.21638)		
(1266	D 3	18AU1964	27.99214)	(1267	D 6	18AU1964	32.38219)	(1268	E 2	15AU1964	22.78696)		
(1269	E 3	15AU1964	23.21437)	(1270	F 1	10AU1964	35.45540)	(1271	C 7	22SE1964	6.95306)		
(1272	C° 1	10SE1964	34.61359)	(1273	C° 2	10SE1964	35.57201)	(1274	D 1	17SE1964	35.86073)		
(1275	D 2	17SE1964	38.50073)	(1276	D 3	18SE1964	26.59811)	(1277	D 4	18SE1964	22.12169)		
(1278	D 6	18SE1964	11.13801)	(1279	E 1	16SE1964	31.88832)	(1280	E 2	16SE1964	5.93941)		
(1281	E 3	16SE1964	25.07428)	(1282	E 4	16SE1964	36.45428)	(1283	E 5	16SE1964	22.90669)		
(1284	E 6	17SE1964	42.81447)	(1285	F 1	15SE1964	38.32623)	(1286	F 2	15SE1964	42.14098)		
(1287	F 3	15SE1964	43.78502)	(1288	B 3	15DC1964	57.29960)	(1445	B 6	14DC1964	18.94977)		
(1289	C 7	14CC1964	10.46568)	(1290	C° 1	16CC1964	46.34621)	(1291	C° 2	16CC1964	35.C3918)		
(1292	D 1	15GC1964	38.08884)	(1293	D 2	15CC1964	21.79039)	(1294	D 3	15DC1964	28.38118)		
(1295	D 4	15CC1964	24.14C79)	(1296	D 5	14DC1964	14.32112)	(1297	D 6	14CC1964	10.12909)		
(1298	E 1	12DC1964	34.11783)	(1299	E 2	12DC1964	35.40685)	(1300	E 3	13DC1964	32.57561)		
(1301	E 4	13GC1964	39.25638)	(1302	E 5	13CC1964	41.66328)	(1303	E 6	13DC1964	17.61124)		
(1304	F 1	11GC1964	75.20003)	(1305	F 2	11DC1964	75.33960)	(1306	F 3	11GC1964	76.05742)		
(1307	B 6	NC1964	36.87399)	(13C8	C 7	6ND1964	16.39343)	(1309	C° 1	10ND1964	58.64C98)		
(1310	C° 2	10ND1964	5C.47618)	(1311	D 1	6ND1964	48.03673)	(1312	D 2	8NC1964	45.41362)		
(1313	D 3	9ND1964	34.59459)	(1314	D 4	9NC1964	35.78984)	(1315	D 5	9NC1964	27.C7C05)		
(1316	D 6	5ND1964	39.13568)	(1317	E 1	6NC1964	48.24997)	(1318	E 2	7NC1964	44.21361)		
(1319	E 3	7ND1964	47.83598)	(1320	E 4	7NC1964	46.18407)	(1321	E 5	7NC1964	48.45007)		
(1322	E 6	7ND1964	51.78790)	(1323	F 1	6ND1964	67.80487)	(1324	F 2	6ND1964	65.87CC7)		
(1325	F 3	6ND1964	48.13722)	(1336	C 3	27JA1967	6.46987)	(1337	C 3	2MR1967	3.36866)		
(1338	C 3	28MR1967	2.71593)	(1339	C 5	28MR1967	2.20739)	(1340	C 7	28MR1967	2.91087)		
(1341	A 3	19AP1967	2.74129)	(1342	A 4	19AP1967	3.81499)	(1344	C 3	25AP1967	1.50550)		
(1345	C 5	25AP1967	2.74830)	(1346	C 7	21AP1967	2.61707)	(1347	E 2	23AP1967	1.62914)		
(1348	E 5	23AP1967	1.75188)	(1368	A 3	4MY1967	4.21929)	(1369	A 4	4MY1967	C.33919)		

(1370	A 6	3MY1967	6.41271)	(1371	C 3	4MY1967	6.54019)	(1372	C 5	5MY1967	6.36173)
(1373	C 7	5MY1967	0.47921)	(1374	E 2	7MY1967	2.30126)	(1375	E 3	7MY1967	1.88647)
(1376	E 5	8MY1967	3.98302)	(1408	A 3	23MY1967	4.69526)	(1409	A 4	23MY1967	2.10677)
(1410	A 6	24MY1967	6.39377)	(1411	C 3	31MY1967	2.87203)	(1412	C 5	31MY1967	1.94882)
(1413	C 7	25MY1967	2.22331)	(1414	E 2	28MY1967	2.38791)	(1415	E 3	28MY1967	0.44970)
(1416	E 5	28MY1967	2.77942)	(1431	A 3	12JN1967	3.82110)	(1432	A 4	13JN1967	[illegible])
(1433	C 3	17JN1967	4.97352)	(1434	C 5	17JN1967	2.53619)	(1435	C 7	13JN1967	2.52694)
(1436	E 2	15JN1967	1.88522)	(1437	E 3	15JN1967	0.45218)	(1438	E 5	14JN1967	3.80420)
(1446	A 3	11JL1967	2.39714)	(1447	A 4	11JL1967	12.77133)	(1448	A 6	10JL1967	5.44651)
(1449	C 3	16JL1967	5.08235)	(1450	C 5	16JL1967	8.93078)	(1451	C 7	16JL1967	10.60982)
(1452	E 2	14JL1967	8.79210)	(1453	E 3	15JL1967	0.57630)	(1454	E 5	15JL1967	15.58319)
(1504	A 3	28AU1967	32.14417)	(1505	A 4	28AU1967	32.46417)	(1506	A 6	29AU1967	20.50529)
(1508	C 3	25SE1967	20.14227)	(1509	C 5	25SE1967	29.32269)	(1510	C 7	29AU1967	26.11444)
(1511	E 2	15SE1967	12.03303)	(1512	E 3	15SE1967	24.18721)	(1513	E 5	31AU1967	51.43407)
(1532	A 3	18SE1967	44.36092)	(1533	A 4	19SE1967	44.84262)	(1534	A 6	19SE1967	43.88607)
(1535	C 7	20SE1967	16.44832)	(1536	E 2	24SE1967	19.27795)	(1537	E 3	24SE1967	16.90675)
(1538	E 5	23SE1967	27.06732)	(1539	C 3	4OC1967	42.26627)	(1540	C 5	4OC1967	38.21909)
(1541	E 2	11OC1967	37.99690)	(1542	E 3	11OC1967	24.20667)	(1543	E 5	10OC1967	28.15686)
(1377	GS 1	9MY1967	0.47101)	(1378	GS 2	9MY1967	3.53223)	(1379	CS 3	9MY1967	5.96534)
(1380	GS 4	9MY1967	9.41651)	(1381	GS 5	10MY1967	5.67667)	(1382	CS 6	10MY1967	2.91432)
(1383	GS 7	10MY1967	5.05239)	(1384	GS 8	10MY1967	2.19983)	(1385	CS 9	10MY1967	3.23044)
(1386	GS10	12MY1967	1.70928)	(1387	GS11	12MY1967	7.20849)	(1388	CS12	12MY1967	4.22323)
(1389	GS13	12MY1967	13.53686)	(1390	GS14	12MY1967	7.39871)	(1391	CS15	12MY1967	8.04482)
(1392	GS16	12MY1967	5.17767)	(1393	GS17	13MY1967	10.35503)	(1394	CS18	13MY1967	8.76004)
(1395	GS19	13MY1967	2.38392)	(1396	GS20	13MY1967	0.88047)	(1397	CS21	13MY1967	0.77832)
(1398	CS22	14MY1967	8.07602)	(1554	GS 1	3OC1967	3O.38496)	(1555	CS 2	3OC1967	37.07626)
(1556	GS 3	3OC1967	23.36131)	(1557	GS 4	3OC1967	54.93272)	(1558	CS 5	4OC1967	51.88678)
(1559	GS 7	4OC1967	54.34706)	(1560	GS 8	4OC1967	32.73036)	(1561	CS 9	4OC1967	26.70657)
(1562	GS10	5OC1967	30.22154)	(1563	GS11	5OC1967	46.32184)	(1564	CS12	5OC1967	73.16148)
(1565	GS13	5OC1967	60.69363)	(1566	GS14	5OC1967	45.44046)	(1567	CS15	5CC1967	3C.11876)
(1568	GS16	5OC1967	31.00964)	(1569	GS17	5OC1967	56.50111)	(1570	CS18	5OC1967	48.59183)
(1571	GS19	6CC1967	8.85106)	(1572	GS20	6OC1967	6.68758)	(1573	CS21	6CC1967	14.26764)
(1574	GS22	6CC1967	31.81268)	(1575	GS28	6CC1967	13.72761)	(1544	MU 1	2OC1967	0.40031)
(1547	MS 1	2OC1967	23.12175)	(1524	MI 1	2OSE1967	15.76182)	(1546	LU 1	2OC1967	3.44120)
(1520	MO 1	18SE1967	18.85991)	(1521	SH 1	18SE1967	18.46295)	(1522	ZH 1	18SE1967	0.00912)
(1523	MA 1	19SE1967	41.32840)	(1525	PW 1	2OSE1967	25.62317)	(1526	MO 1	2OSE1967	15.47477)
(1527	TR 1	2OSE1967	5.23270)	(1528	SB 1	2OSE1967	26.10452)	(1529	KW 1	2OSE1967	17.65199)
(1530	FR 1	24SE1967	18.88188)	(1531	GH 1	25SE1967	0.48183)	(1545	WL 1	2CC1967	3.13535)
(1548	CA 1	3OC1967	68.59178)	(1549	MQ 1	4OC1967	14.03316)	(1551	ES 1	5OC1967	38.21391)
(1552	SM 1	6CC1967	29.47507)	(1550	MR 1	5OC1967	4.55553)	(1553	SG 1	6OC1967	16.80376)
(1428	MU 2	29MY1967	1.06059)	(1426	MS 2	25MY1967	7.72703)	(1351	PI 2	21AP1967	1.43988)
(1427	LU 2	29MY1967	2.90557)	(1417	MO 2	22MY1967	1.91416)	(1418	SH 2	22MY1967	5.97201)
(1350	BM 2	19AP1967	0.95152)	(1425	MA 2	25MY1967	12.02369)	(1399	PW 2	9MY1967	5.00544)
(1401	MO 2	6MY1967	1.97554)	(1402	TR 2	6MY1967	4.07191)	(1400	SB 2	6MY1967	5.81368)
(1352	KW 2	21AP1967	5.63477)	(1353	FR 2	23AP1967	0.07384)	(1354	GH 2	25AP1967	0.46949)
(1429	WL 2	29MY1967	2.03843)	(1403	CA 2	10MY1967	5.85851)	(1404	MQ 2	10MY1967	3.45528)
(1405	ES 2	12MY1967	5.57275)	(1407	SM 2	14MY1967	6.11453)	(1349	CI 2	15AP1967	2.12659)
(1406	GB 2	13MY1967	0.09435)	(1419	BU 2	23MY1967	12.59612)	(1420	IM 2	23MY1967	9.86767)
(1421	CH 2	23MY1967	11.10360)	(1422	GA 2	23MY1967	12.18004)	(1423	BA 2	25MY1967	19.52640)
(1424	KN 2	25MY1967	13.64242)	(1430	MC 2	12JN1967	4.34246)				

Fragilaria crotonensis var. *oregona* Sov.

Fragilaria crotonensis var. *oregona* Sovereign, Trans. American Micr. Soc. 77:107. pl. 2, figs. 1-3. 1958.

Cells in girdle view lanceolate, with expanded central portions and bluntly rounded to subcapitate ends. Cells joined by the valve faces of the expanded central portions into long, ribbon-shaped colonies. Specimens from Lake Michigan 55-150μ long, 2.5-4μ broad at the widest point. Valves elongate-lanceolate, central portion of the valve constricted, widest point lying on each side of the central area. Striae fine but distinct, 12-15 in 10μ. Axial area narrow, central area a structureless transverse fascia.

This species is one of the most widely reported of all freshwater plankton diatoms. Although most authors have chosen to treat all entities having similar colony form under the single epithet, the forms found in Lake Michigan are clearly separable into at least three series on the basis of morphology. The obvious differences in the size range of populations occurring in different lakes in Europe has been commented upon by Huber-Pestalozzi (1942). In Lake Michigan we have found occasional populations of apparent auxospores in the size range of 70-90μ, clearly smaller than the maximum size of two of the entities in the complex. Nipkow (1927) has reported similar observations from Lake Zurich. It seems clear to us that, in its general usage, the name *F. crotonensis* is applied to a complex of separate genetic entities. The proper taxonomic treatment of this complex is yet to be resolved. The treatment presented here appears reasonable on the grounds of morphologic criteria but further research may prove it to be inadequate.

249 FRSPECOF TOT NO OF STATIONS 29

146919	CH		5JN1967	0.00152)	(1235	C 7		16JN1964	0.00282)	(1248	B 3		24JL1964	C.00788)
(1261	B 3		24U1964	0.00589)	(1264	C* 1		10AU1964	0.00772)	(1299	E 2		12OC1964	C.00314)
(1322	E 6		7NO1964	0.01000)	(1324	F 2		6NO1964	0.00486)	(1452	E 2		14JL1967	C.00426)
(1454	E 5		15JL1967	0.00200)	(1532	A 3		18SE1967	0.00329)	(1533	A 4		19SE1967	C.00928)
(1533	C 7		20SE1967	0.00322)	(1539	C 3		40C1967	0.00503)	(1393	CS17		13MY1967	C.00274)
(1395	GS19		13MY1967	0.00235)	(1544	MU 1		20C1967	0.01191)	(1547	MS 1		20C1967	C.01597)
(1521	SH 1		18SE1967	0.00577)	(1522	BH 1		18SE1967	0.05106)	(1523	MA 1		19SE1967	C.01845)
(1531	GH 1		25SE1967	C.10989)	(1545	WL 1		20C1967	0.02703)	(1550	MR 1		50C1967	C.01239)
(1428	MU 2		25MY1967	0.25310)	(1426	MS 2		29MY1967	0.47244)	(1417	PO 2		22MY1967	C.02243)
(1350	BH 2		19AP1967	0.01542)	(1429	WL 2		29MY1967	0.04247)	(				

Fragilaria heideni Østrup

Synedra inflata Heiden, Mitt. Grossh. Meckl. Geol. Landesanst., 10(21): 14, fig. 19. 1900.
Fragilaria heideni Østrup, Danske Diat., p. 190, pl. 5, fig. 118. 1910.
Fragilaria inflata (Heid.) Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschlands, 7(2)1:155, fig. 669. 1931. (non Pantocsek 1902).

Cells in girdle view rectangular, in life attached by the valve surfaces into band-shaped colonies. Valves lanceolate with expanded central portions and bluntly rounded to subcapitate ends. Specimens from Lake Michigan 22-40μ long, 7-10μ broad. Striae perpendicular to the midline of the valve throughout, 13-15 in 10μ. Axial area wide, lanceolate, without any especially demarcated central area.

Previous reports indicate that this entity is a littoral form in large lakes. In Lake Michigan it has only been noted in inshore areas.

253 FRINFLAT TOT NO OF STATIONS 3

(1350	BH 2		19AP1967	0.05506)	(1402	TR 2		6MY1967	C.00541)	(1404	PO 2		10MY1967	C.01270)

Fragilaria heideni var. *istvanffyi* (Pant.)

Fragilaria istvanffyi Pantocsek, Res. Wiss. Erforsh. Balatonsees, p. 79, pl. 9, fig. 225, 1902.
Fragilaria inflata var. *istvanffyi* (Pant.) Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschlands, 7(2)1:156, fig. 669. 1931.

Differs from the nominate variety in having more or less strongly triundulate margins and subcapitate to capitate ends.

254 FRINFLVI TOT NO OF STATIONS 1

(1350	BH 2		19AP1967	0.00220)

Fragilaria intermedia Grun.

Fragilaria intermedia Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 45, figs. 9-11. 1881.

Cells in girdle view elongate-rectangular, in life attached by the valve surfaces into long, band-shaped colonies. Valves linear-lanceolate to lanceolate with rostrate to subcapitate ends. Specimens from Lake Michigan 25-65μ long, 3-5μ broad. Transapical striae perpendicular to the apical axis throughout, coarsely structured, 8-13 in 10μ, finely cross-lineate. Axial area narrow, linear distinctly bordered. Central area a unilateral fascia, not visibly thickened, often indistinct or containing rudimentary striae.

This entity shows a great deal of variation in populations from Lake Michigan. Although previous reports indicate that it is primarily littoral in most habitats, it is present in the offshore plankton from Lake Michigan and often in considerable quantity. The forms occurring in the offshore plankton tend to be more elongate and lanceolate rather than linear in outline and may represent a separate variety or form. Our observations to date, however, indicate that these forms grade into the nominate variety to the extent that they cannot be satisfactorily separated on the basis of morphologic characteristics.

Petersen (1938) and several other authors have called attention to the similarity of this taxon to *Synedra vaucheriae* Kützer. [*Fragilaria vaucheriae* (Kützer.) Peters.]. It is Peterson's contention, based on the observation of isotype material, that the two entities are synonymous. If this contention can be supported, the entity we treat here, as it is generally treated in the modern literature, will need to be renamed as it is easily distinguished from *S. vaucheriae* on several morphologic characteristics. The decision on this awaits the monographer with access to type material.

Ahlstrom (1936) reported *Fragilaria virescens* Ralfs abundant in collections from Lake Michigan. We suspect that he was, in fact, dealing with the entity we treat here.

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(46921	CH		23NO1945	C.00194)	(46914	CH		19AP1946	C.00107)	(46923	CH		22NO1946	C.00437)
(46916	CH		4MY1947	0.00204)	(46919	CH		5JN1947	C.29453)	(46922	CH		21AU1947	C.00048)
(46758	EV		5JN1937	1.09835)	(46771	EV		11JN1937	C.00238)	(46745	EV		3JL1937	C.02090)
(46770	EV		9JL1937	0.28626)	(46764	EV		17JL1937	0.20951)	(46757	EV		25JL1937	C.29869)
(46747	EV		1AU1937	0.45053)	(46763	EV		23AU1937	0.87256)	(46752	EV		15SE1937	C.39182)
(46760	EV		22SE1937	0.05965)	(46750	EV		24SE1937	0.03299)	(46748	EV		13OC1937	C.02135)
(46767	EV		27OC1937	0.03095)	(46749	EV		12MR1938	0.03641)	(46768	EV		16MR1938	C.05880)
(46762	EV		18MR1938	0.19850)	(46772	EV		18AP1938	0.00710)	(46756	EV		27AP1938	C.01175)
(46759	EV		19MY1938	0.01350)	(46761	EV		27MY1938	0.01363)	(46766	EV		14OE1938	C.04753)
(1225	C	6	15MY1964	0.00784)	(1226	C	7	16MY1964	C.01142)	(1227	C*	2	13MY1964	C.CC110)
(1228	D	2	14MY1964	0.00389)	(1229	D	5	14MY1964	0.01057)	(1230	E	2	16MY1964	C.01778)
(1231	E	3	16MY1964	0.00245)	(1232	E	5	16MY1964	C.12870)	(1233	B	3	5JN2964	C.00238)
(1439	B	6	5JN1964	0.00599)	(1236	C*	1	8JN1964	C.00700)	(1239	D	4	11JN1964	C.10212)
(1240	D	6	10JN1964	0.02301)	(1241	E	2	13JN1964	C.02218)	(1242	E	3	13JN1964	C.C6294)
(1243	E	6	13JN1964	0.03550)	(1244	F	1	11JN1964	C.00329)	(1245	F	2	11JN1964	C.00692)
(1246	F	3	11JN1964	0.05379)	(1252	C*	1	16JL1964	C.01395)	(1254	D	2	15JL1964	0.00192)
(1256	E	2	14JL1964	0.00916)	(1257	E	3	14JL1964	0.01675)	(1258	F	1	6JL1964	C.00472)
(1260	F	3	6JL1964	C.CC191)	(1267	G	6	18AU1964	C.01513)	(1268	E	2	15JU1964	C.CC274)
(1269	E	3	15AU1964	0.00274)	(1270	F	1	10AU1964	0.00817)	(1273	C*	2	10SE1964	C.00538)
(1275	D	2	17SE1964	0.CC645)	(1284	E	6	17SE1964	0.00319)	(1285	F	1	15SE1964	C.1C483)
(1289	C	7	14OC1964	0.01319)	(1291	C*	2	16OC1964	C.00245)	(1292	D	1	15OC1964	C.00373)
(1297	D	6	14OC1964	0.CC762)	(1303	E	6	13CC1964	0.04678)	(1305	F	2	11OC1964	C.CC173)
(1308	C	7	6NO1964	0.01217)	(1313	E	3	9NO1964	C.00193)	(1316	D	6	9NO1964	C.0C756)
(1318	E	2	7NO1964	C.00190)	(1321	E	5	7NO1964	C.00319)	(1322	E	6	7NC1964	C.02333)
(1323	F	1	6NO1964	0.0C139)	(1324	F	2	6NC1964	0.00233)	(1336	C	3	27JA1967	C.C1348)
(1337	C	3	2MR1967	0.51441)	(1338	C	3	28MR1967	C.67964)	(1339	C	5	28MR1967	C.43649)
(1340	C	7	28MR1967	C.91624)	(1341	A	3	19AP1967	1.51872)	(1342	A	4	19AP1967	C.58831)
(1343	A	6	19AP1967	0.24316)	(1344	C	3	25AP1967	1.15808)	(1345	C	5	25AP1967	C.45611)
(1346	C	7	21AP1967	0.23367)	(1347	E	2	23AP1967	C.06178)	(1348	E	5	23AP1967	C.76765)
(1368	A	3	4MY1967	0.73516)	(1369	A	4	4MY1967	0.14164)	(1370	A	6	3MY1967	C.44424)
(1371	C	3	4MY1967	C.21007)	(1372	C	5	5MY1967	C.12768)	(1373	C	7	5MY1967	C.55835)
(1374	E	2	7MY1967	0.37956)	(1375	E	3	7MY1967	C.13234)	(1376	E	5	6MY1967	C.98381)
(1408	A	3	23MY1967	0.06260)	(1409	A	4	23MY1967	0.10415)	(1410	A	6	24MY1967	C.03383)
(1411	C	3	31MY1967	0.14360)	(1412	C	5	31MY1967	C.07155)	(1413	C	7	25MY1967	C.01264)
(1414	E	2	28MY1967	0.02687)	(1415	E	3	28MY1967	0.00675)	(1416	E	5	28MY1967	C.01093)
(1511	E	2	15SE1967	0.00307)	(1536	E	2	24SE1967	0.00818)	(1537	E	3	24SE1967	C.0C431)
(1538	E	5	23SE1967	0.04972)	(1387	GS11		12MY1967	C.C1980)	(1389	GS13		12MY1967	C.0C516)
(1390	GS14		12MY1967	0.01174)	(1392	GS16		12MY1967	0.01849)	(1358	GS22		14MY1967	C.0C607)
(1559	GS	7	4OC1967	0.00350)	(1567	GS15		5OC1967	C.00159)	(1571	CS19		6OC1967	C.00C99)
(1574	GS22		6OC1967	0.00575)	(1575	GS28		6OC1967	0.00258)	(1522	BH	1	18SE1967	C.00365)
(1526	MD	1	20SE1967	C.06258)	(1527	TR	1	20SE1967	0.13836)	(1528	SB	1	20SE1967	C.01444)
(1529	Kw	1	20SE1967	2.37638)	(1530	FR	1	24SE1967	C.C2000)	(1531	ES	1	5OC1967	C.01598)
(1552	SH	1	6OC1967	0.02641)	(1550	MR	1	5OC1967	0.06195)	(1553	SG	1	6OC1967	C.01469)
(1351	M1	2	21AP1967	0.00621)	(1427	LU	2	29MY1967	0.01211)	(1418	SH	2	22MY1967	C.01555)
(1350	BH	2	19AP1967	C.16960)	(1399	Pw	2	5MY1967	C.04081)	(1401	PC	2	6MY1967	C.02528)
(1402	TR	2	6MY1967	0.02707)	(1352	Kw	2	21AP1967	C.18038)	(1353	FR	2	23AP1967	C.01055)
(1354	GM	2	25AP1967	0.00518)	(1404	MD	2	10MY1967	0.01270)	(1407	SM	2	14MY1967	C.01194)
(1421	CH	2	23MY1967	0.01735)	(									

Fragilaria intermedia var. *fallax* (Grun.)

Synedra (amphicephala v. *??) fallax* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 39, fig. 16c. 1881.
Fragilaria vaucheriae var. *fallax* (Grun.) A. Cleve-Euler, K. Svenska Vet.-Akad. Handl., Fjärde Ser., 4(1):43, figs. 353s-x. 1953.

Valves more elongate and narrower than in the nominate variety, occasional specimens to 120μ long, linear to linear-lanceolate. Other features essentially as in the nominate variety.

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(46973	CH		1876	19.88663)	(3546	CH		11MY1879	4.78966)	(3541	CH		1FE1881	C.69538)
(3507	CH		19FE1881	1.81118)	(46910	CH		0C1945	3.12404)	(46921	CH		23NO1945	1.70214)
(46908	CH		DE1945	0.21148)	(46917	CH		12JA1946	0.66676)	(46915	CH		20FE1946	1.47954)
(46914	CH		19AP1946	3.40907)	(46924	CH		10MY1946	2.43030)	(46923	CH		22NO1946	5.75250)
(46920	CH		20DE1946	2.91402)	(46505	CH		JA1947	3.14622)	(46909	CH		MR1947	3.11006)
(46912	CH		AP1947	C.90836)	(46916	CH		4MY1947	C.48518)	(46906	CH		MY1947	C.51768)
(46919	CH		5JN1947	0.00303)	(46507	CH		JL1947	C.70515)	(46913	CH		6AU1947	C.02092)
(46922	CH		21AU1947	0.37802)	(46758	EV		5JN1937	4.69296)	(46771	EV		11JN1937	C.39941)
(46763	EV		20JN1937	2.99734)	(46795	EV		3JL1937	10.53292)	(46770	EV		9JL1937	0.83492)
(46764	EV		17JL1937	2.48187)	(46757	EV		25JL1937	0.89548)	(46747	EV		14U1937	8.59470)
(46763	EV		23AU1937	3.40905)	(46765	EV		30AU1937	0.62465)	(46769	EV		7SE1937	C.69475)
(46752	EV		15SE1937	9.14236)	(46760	EV		22SE1937	9.23728)	(46750	EV		24SE1937	1C.42560)
(46748	EV		13OC1937	3.97096)	(46767	EV		27OC1937	3.79096)	(46749	EV		12MR1938	4.41801)
(46768	EV		16MR1938	5.35058)	(46762	EV		18MR1938	5.77856)	(46751	EV		30MR1938	7.50335)
(46772	EV		18AP1938	3.57700)	(46756	EV		27AP1938	2.58576)	(46759	EV		19MY1938	2.64686)
(1224	B 4		18MY1964	0.07046)	(1225	C 6		15MY1964	0.14112)	(1226	C 7		16MY1964	C.05327)
(1227	C* 2		13MY1964	0.06470)	(1228	D 2		14MY1964	C.40879)	(1229	D 5		14MY1964	C.54133)
(1231	E 3		16MY1964	0.11007)	(1232	E 5		16MY1964	1.21743)	(1234	B 3		18JN1964	0.00562)
(1439	B 6		5JN1964	0.00795)	(1236	C* 1		8JN1964	C.00700)	(1237	C* 2		8JN1964	0.00258)
(1238	D 3		11JN1964	C.28000)	(1239	D 4		11JN1964	0.37830)	(1240	D 6		10JN1964	0.02301)
(1241	E 2		13JN1964	0.22770)	(1242	E 3		13JN1964	C.11090)	(1243	E 6		13JN1964	0.03758)
(1244	F 1		11JN1964	0.00768)	(1245	F 2		11JN1964	C.02766)	(1246	F 3		11JN1964	C.2C917)
(1248	B 3		24JL1964	0.00197)	(1250	C 6		10JL1964	0.00822)	(1252	C* 1		16JL1964	0.02232)
(1254	D 2		15JL1964	0.00958)	(1256	E 2		14JL1964	C.07694)	(1257	E 3		14JL1964	C.01436)
(1258	F 1		6JL1964	0.01416)	(1259	F 2		6JL1964	C.C0620)	(1260	F 3		6JL1964	C.01928)
(1261	B 3		2AU1964	0.00196)	(1263	C 7		15AU1964	C.00400)	(1264	C* 1		10AU1964	C.CC193)
(1265	C* 2		10AU1964	0.00671)	(1269	E 3		15AU1964	0.00548)	(1270	F 1		1CAU1964	C.0C272)
(1271	C 7		22SE1964	0.00653)	(1273	C* 2		10SE1964	0.00538)	(1278	D 6		18SE1964	0.00384)
(1279	E 1		16SE1964	0.00393)	(128C	E 2		16SE1964	0.00681)	(1281	E 3		16SE1964	C.00392)
(1284	E 6		17SE1964	0.00635)	(1285	F 1		15SE1964	0.04659)	(1286	F 2		15SE1964	0.01095)
(1288	B 3		15CC1964	0.00653)	(1445	B 6		14OC1964	0.00652)	(1289	C 7		14OC1964	C.0C440)
(1295	D 4		15OC1964	0.00595)	(1297	D 6		14OC1964	0.07997)	(1298	E 1		12OC1964	C.01077)
(1300	E 3		13OC1964	0.00716)	(1302	E 5		13OC1964	C.02429)	(1303	E 6		13OC1964	C.1C075)
(1304	F 1		11OC1964	0.00494)	(1307	B 6		NC1964	C.01082)	(1308	C 7		6NO1964	C.CC912)
(1313	D 3		9NO1964	0.00386)	(1314	D 4		9NO1964	C.00287)	(1316	D 6		9NO1964	C.05289)
(1317	E 1		6NO1964	0.00383)	(1319	E 3		7NO1964	C.00262)	(1320	E 4		7NO1964	C.00207)
(1321	E 5		7NO1964	0.00638)	(1322	E 6		7NO1964	0.02999)	(1324	F 2		6NO1964	C.0C466)
(1325	F 3		6NO1964	0.00252)	(1336	C 3		27JA1967	0.02888)	(1337	C 3		2MR1967	C.1C876)
(1338	C 3		28MR1967	0.01983)	(1339	C 5		28MR1967	C.02806)	(1340	C 7		28MR1967	C.06036)
(1341	A 3		19AP1967	0.1C197)	(1342	A 4		19AP1967	0.34829)	(1343	A 6		19AP1967	C.C8962)
(1344	C 3		25AP1967	0.11581)	(1345	C 5		25AP1967	0.21051)	(1346	C 7		21AP1967	C.46733)
(1347	E 2		21AP1967	0.38046)	(1348	E 5		23AP1967	C.52776)	(1360	A 3		4MY1967	C.43984)
(1369	A 4		4MY1967	0.27582)	(1370	A 6		3MY1967	0.60536)	(1371	C 3		4MY1967	1.18657)
(1372	C 5		5MY1967	0.49652)	(1373	C 7		5MY1967	C.59901)	(1374	E 2		7MY1967	C.50209)
(1375	E 3		7MY1967	0.42109)	(1376	E 5		6MY1967	1.83832)	(1408	A 3		23MY1967	C.62603)
(1409	A 4		23MY1967	0.35410)	(1410	A 6		24MY1967	0.03383)	(1411	C 3		31MY1967	C.63185)
(1412	C 5		31MY1967	C.58928)	(1413	C 7		25MY1967	C.88448)	(1414	E 2		28MY1967	C.47C19)
(1415	E 3		28MY1967	0.31479)	(1416	E 5		28MY1967	1.98998)	(1431	A 3		12JN1967	0.04635)
(1432	A 4		13JN1967	3.03975)	(1433	C 3		17JN1967	1.13034)	(1434	C 5		17JN1967	1.15145)
(1435	C 7		13JN1967	0.38519)	(1436	E 2		15JN1967	1.66640)	(1437	E 3		15JN1967	3.01456)
(1438	E 5		14JN1967	7.87945)	(1446	A 3		11JL1967	0.00245)	(1449	C 3		16JL1967	C.89419)
(1450	C 5		16JL1967	0.06665)	(1451	C 7		16JL1967	0.00394)	(1452	E 2		14JL1967	C.13412)
(1453	E 3		15JL1967	0.64707)	(1504	A 3		28AU1967	0.01234)	(1510	C 7		29AU1967	C.00316)
(1511	E 2		15SE1967	0.00814)	(1512	E 3		15SE1967	0.02356)	(1536	E 2		24SE1967	C.03545)
(1537	E 3		24SE1967	0.00863)	(1538	E 5		23SE1967	C.07734)	(1539	C 3		4OC1967	C.01006)
(1540	C 5		4OC1967	0.02482)	(1541	E 2		11OC1967	0.00532)	(1542	E 3		11OC1967	C.00509)
(1377	GS 1		9MY1967	5.26420)	(1378	GS 2		9MY1967	13.83457)	(1379	GS 3		9MY1967	9.09879)
(1380	GS 4		9MY1967	9.18110)	(1381	GS 5		10MY1967	12.18814)	(1382	GS 6		10MY1967	15.34875)
(1383	GS 7		10MY1967	12.35030)	(1384	GS 8		10MY1967	13.58721)	(1385	GS 9		10MY1967	8.0761C)
(1386	GS1C		12MY1967	14.67565)	(1387	GS11		12MY1967	4.71324)	(1388	GS12		12MY1967	C.58522)
(1389	GS13		12MY1967	0.51569)	(1390	GS14		12MY1967	0.75749)	(1391	GS15		12MY1967	3.35201)
(1392	GS16		12MY1967	4.53C46)	(1393	GS17		13MY1967	5.75279)	(1394	GS18		13MY1967	3.73275)
(1395	GS19		13MY1967	0.25836)	(1396	GS20		13MY1967	0.00444)	(1397	GS21		13MY1967	C.C2028)
(1398	GS22		14MY1967	0.35465)	(1554	GS 1		3CC1967	C.00712)	(1555	GS 2		3OC1967	C.C1412)
(1557	GS 4		3OC1967	0.03363)	(1558	GS 5		4OC1967	C.02775)	(1559	GS 7		4OC1967	C.00350)
(1560	GS 8		4OC1967	0.01417)	(1561	GS 9		4OC1967	0.01761)	(1562	GS10		5OC1967	C.C1480)
(1563	GS11		5OC1967	0.03507)	(1564	GS12		5OC1967	0.00823)	(1565	GS13		5OC1967	C.01014)
(1566	GS14		5OC1967	0.05870)	(1567	GS15		5CC1967	0.03175)	(1568	GS16		5OC1967	C.17171)
(1569	GS17		5OC1967	0.41621)	(1570	GS18		5CC1967	0.00992)	(1571	GS19		6OC1967	C.0C82C)
(1573	GS21		6OC1967	0.00560)	(1574	GS22		6OC1967	0.02301)	(1575	GS20		6OC1967	C.0C516)
(1544	MU 1		20C1967	0.0C238)	(1524	MI 1		20SE1967	C.02189)	(1546	LU 1		20C1967	C.C1000)
(1520	MA 1		18SE1967	0.00943)	(1521	SM 1		18SE1967	C.06347)	(1523	MA 1		19SE1967	C.02768)

(1526	MO 1	20SE1967	0.21619)	(1527	TR 1	2CSE1967	C.27044)	(1529	KW 1	20SE1967	0.02398)
(1530	FR 1	24SE1967	0.05001)	(1545	WL 1	20C1967	C.02703)	(1548	CA 1	30C1967	C.C5088)
(1552	SM 1	6CC1967	0.1220E)	(1550	MR 1	5OC1967	C.30975)	(1553	SG 1	60C1967	C.C1469)
(1428	MU 2	29MY1967	0.15668)	(1426	MS 2	29MY1967	C.45144)	(1351	PI 2	21AP1967	1.34057)
(1427	LU 2	29MY1967	2.51816)	(1417	MC 2	22MY1967	2.93106)	(1418	SP 2	22MY1967	C.8C871)
(1359	BM 2	19AP1967	0.14097)	(1425	RA 2	25MY1967	C.55698)	(1399	PW 2	5MY1967	1.3C577)
(1401	MO 2	6MY1967	1.97554)	(1402	TR 2	6MY1967	2.51245)	(1400	SB 2	6MY1967	2.95449)
(1352	KW 2	21AP1967	2.74867)	(1353	FR 2	23AP1967	C.29536)	(1356	GM 2	25AP1967	C.23302)
(1429	WL 2	29MY1967	0.40344)	(1403	CA 2	10MY1967	10.04315)	(1404	MG 2	10MY1967	C.72409)
(1405	ES 2	12MY1967	0.25155)	(1407	SM 2	14MY1967	C.11345)	(1349	CI 2	19AP1967	C.63223)
(1406	CB 2	13MY1967	0.0C270)	(1419	BU 2	23MY1967	C.95203)	(1420	IM 2	23MY1967	C.12C85)
(1421	CH 2	23MY1967	0.13879)	(1422	GA 2	23MY1967	C.42916)	(1423	WA 2	25MY1967	1.84987)
(1424	KN 2	25MY1967	0.46629)	(							

Fragilaria leptostauron (Ehr.) Hust.

Biblarium leptostauron Ehrenberg, Mikrogeol., pl. 12, figs. 25-36. 1854.
Fragilaria leptostauron (Ehr.) Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)1:153, figs. 668a-b. 1931.

Cells in girdle view short rectangular, attached by the valve faces into short, often irregular or disorganized, band-shaped colonies. Valves lanceolate with extremely expanded centers, larger specimens cruciate in outline. This central expansion appears as a line or double line, depending on the level of focus, when the colony is seen in girdle view. Specimens from Lake Michigan 8-30μ long, 7-18μbroad. Striae very coarse, chambered 5-9 in 10μ, distinctly cross lineate. Axial area moderately broad, lanceolate in shape. No distinguishable central area is present. This species is extremely variable in outline and ornamentation and deformed or abnormal specimens are common in our collections.

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(6C973	CH	1876	0.11809)	(3540	CH	11MY1875	0.05125)	(3541	CH	1FE1881	C.0C978)
(3507	CH	19FE1881	0.04528)	(46921	CH	23ND1945	0.00905)	(46917	CH	12JA1946	0.0C139)
(46915	CH	20FE1946	0.03983)	(46914	CH	19AP1946	0.00854)	(46924	CH	10MY1946	C.CC635)
(46923	CH	22ND1946	0.02404)	(46920	CH	20DE1946	0.00585)	(46905	CH	JA1947	C.00245)
(46909	CH	MR1947	0.00455)	(46916	CH	4MY1947	C.00475)	(46906	CH	MY1947	C.CC796)
(46919	CH	5JN1947	0.0C910)	(46907	CH	JL1947	0.00937)	(46922	CH	21AU1947	C.01357)
(46758	EV	5JN1937	0.15334)	(46771	EV	11JN1937	C.00475)	(46743	EV	20JN1937	C.02566)
(46764	EV	17JL1937	0.10475)	(46757	EV	25JL1937	C.11073)	(46747	EV	1AU1937	C.05190)
(46763	EV	23AU1937	0.12175)	(46765	EV	30AU1937	C.0C558)	(46752	EV	15SE1937	C.17414)
(46760	EV	22SE1937	0.00985)	(46750	EV	24SE1937	0.01414)	(46744	EV	6OC1937	C.0C488)
(46748	EV	13OC1937	0.40564)	(46767	EV	27OC1937	C.06189)	(46768	EV	16MR1938	C.C4410)
(46762	EV	18MR1938	0.15439)	(46756	EV	27AP1938	C.00336)	(46759	EV	19MY1938	C.0C338)
(46766	EV	14DE1938	C.03169)	(1235	C 7	16JN1964	C.00282)	(1238	D 3	11JN1964	C.CC2CC)
(1240	D 6	10JN1964	0.05829)	(1243	E 6	13JN1964	C.C9396)	(1252	C* 1	16JL1964	C.0C558)
(1264	C* 1	10AU1964	C.0C193)	(1265	C* 2	10AU1964	0.00224)	(1267	D 6	18AU1964	0.CC216)
(1270	F 1	1CAU1964	0.00272)	(1271	C 7	22SE1964	0.01306)	(1279	E 1	16SE1964	C.C1571)
(1283	E 5	16SE1964	0.01226)	(1284	E 6	17SE1964	0.02542)	(1285	F 1	15SE1964	0.01165)
(1297	D 6	14OC1964	0.00381)	(13C0	E 3	13OC1964	C.00358)	(1302	E 5	13OC1964	C.C1215)
(1303	E 6	13OC1964	C.CC560)	(13C8	C 7	6NO1964	C.00304)	(1317	E 1	6NO1964	C.CC191)
(1318	E 2	7NO1964	0.00190)	(1322	E 6	7NO1964	C.C1666)	(1338	C 3	28MR1967	0.00264)
(1341	A 3	19AP1967	0.0C217)	(1343	A 6	19AP1967	0.00556)	(1348	E 5	23AP1967	C.0C274)
(1368	A 3	4MY1967	0.00314)	(1371	C 3	4MY1967	C.00231)	(1411	C 3	31MY1967	C.0C410)
(1449	C 3	16JL1967	0.00382)	(1536	E 2	24SE1967	0.00273)	(1538	E 5	23SE1967	C.06076)
(1543	E 5	10CC1967	C.0C718)	(1546	GS10	12MY1967	0.00862)	(1387	GS11	12MY1967	C.C3565)
(1388	GS12	12MY1967	0.00603)	(1389	GS13	12MY1967	0.00516)	(1393	GS17	13MY1967	C.0C274)
(1394	GS18	13MY1967	0.00516)	(1397	GS21	13MY1967	C.00065)	(1398	GS22	14MY1967	C.CE197)
(1565	GS13	5OC1967	0.01014)	(1566	GS14	5OC1967	0.00183)	(1567	CS15	5OC1967	C.0C318)
(1569	GS17	5OC1967	0.00892)	(1570	GS18	5OC1967	C.00992)	(1573	GS21	6OC1967	0.00224)
(1574	GS22	6OC1967	2.21481)	(1575	GS28	6OC1967	C.00387)	(1546	LU 1	2OC1967	C.0C500)
(1521	SH 1	18SE1967	0.0C577)	(1526	MO 1	20SE1967	C.36980)	(1527	TR 1	20SE1967	C.5E491)
(1528	SB 1	20SE1967	0.18770)	(1529	KW 1	20SE1967	0.38374)	(1552	SM 1	6OC1967	0.37636)
(1550	MR 1	5OC1967	0.08673)	(1553	SG 1	6CC1967	0.10282)	(1426	MS 2	25MY1967	C.C1050)
(1350	BM 2	19AP1967	0.00661)	(1399	PW 2	5MY1967	0.08161)	(1401	MO 2	6MY1967	C.33514)
(1402	TR 2	6MY1967	0.22742)	(1400	SB 2	6MY1967	C.14892)	(1352	KW 2	21AP1967	C.03436)
(1404	MO 2	10MY1967	0.08892)	(1407	SM 2	14MY1967	0.20302)	(1349	CI 2	19AP1967	0.01078)
(1422	GA 2	23MY1967	0.01022)	(1423	WA 2	25MY1967	C.CC856)	(			

Fragilaria leptostauron var. *dubia* (Grun.) Hust.

Fragilaria harrisonii var. *dubia* Grunow, Verh. Zool.-Bot. Ges. Wien, 12:368, pl. 7, figs. 8a-d. 1862.
Fragilaria leptostauron var. *dubia* (Grun.) Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)1:154, figs. 668h-i. 1931.

The valves of this entity lack the strongly expanded central portion of the nominate variety and are rhombic-lanceolate to elliptic-lanceolate in outline. Other features as in the nominate variety.

258 FRLEPTVQ TCT AC CF STATICNS 5

(1270	F 1	10AU1964	0.00272)	(1569	GS17	50C1967	0.00149)	(1571	GS19	60C1967	0.0C117)		
(1550	MR 1	50C1967	0.08673)	(1426	MS 2	29MY1967	0.02100)	(					

260 FRLEPTVR TCT AC CF STATICNS 2

(1341	A 2	19AP1967	0.00108)	(1552	SM 1	60C1967	C.C0660)	(					

Fragilaria leptostauron var. *fossilis* (Pant.) Řeháková

Staurosira harrisonii var. *fossilis* Pantocsek, Foss. Bacill. Ungarns, Vol. 3, p. 95, pl. 5, fig. 77. 1905.
Fragilaria leptostauron var. *fossilis* (Pant.) Řeháková, Rozpr. Ustřed. Ust. geol. Ceskoslavokia, 32:37, pl. 11, figs. 17-18. 1965.

The valves of this entity are considerably elongated in the apical axis and less strongly expanded in the mid portion of the valve than the nominate variety. The striae are somewhat shortened and a broad, lanceolate, structureless area occupies the axis of the valves. The maximum size of this variety exceeds that of the nominate variety, specimens in our material reaching 45μ in length. Structure and direction of the striae essentially similar to the nominate variety.

259 FRLEPTVF TCT AC CF STATICNS 5

(1567	GS15	5CC1967	0.00159)	(1571	GS19	60C1967	C.00C59)	(1426	MS 2	29MY1967	C.C2100)
(1359	GM 2	25AP1967	0.00[illegible])	(1404	MC 2	10MY1967	0.01270)	(			

Fragilaria pinnata Ehr.

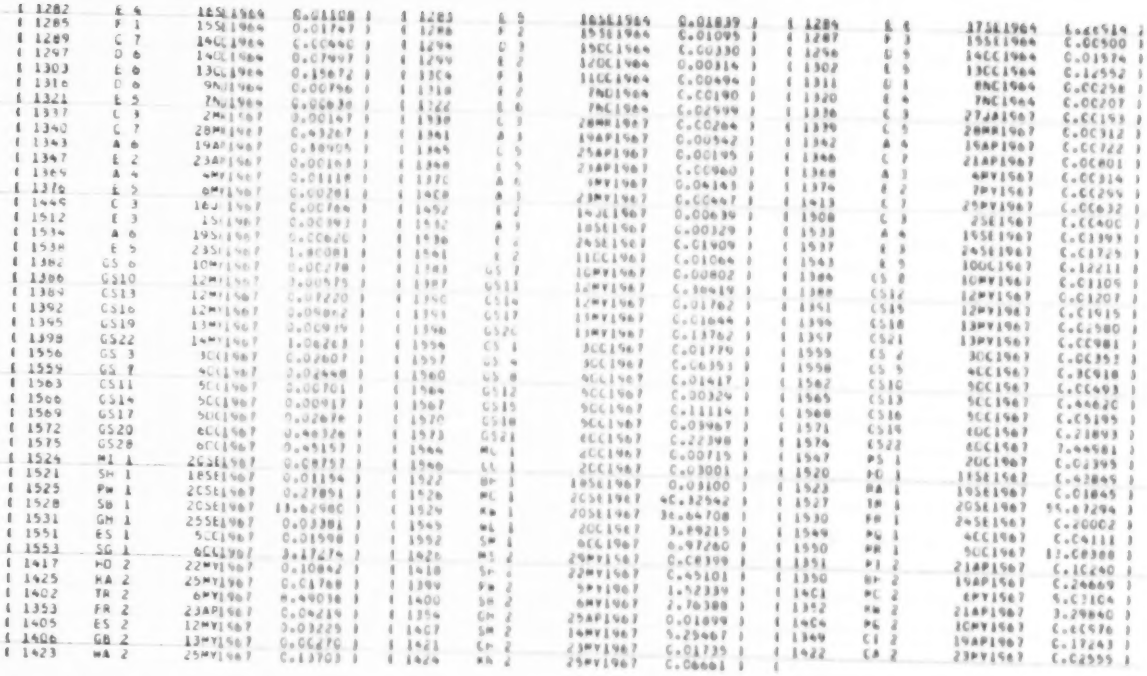
Fragilaria pinnata Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:415, pl. 3(6), fig. 8. 1843.

Cells in girdle view elongate-rectangular to square, attached by the valve faces into band-shaped colonies. Colony formation variable sometimes consisting of only a few cells. Valves variable in outline, linear-elliptic to elliptic, in the smaller individuals nearly circular. Specimens from Lake Michigan 5-30μ long, 2-6μ broad. Striae coarse, chambered, 8-11 in 10μ, distinctly cross lineate. Axial area narrow, linear to very slightly lanceolate. No specially demarcated central area is present.

This species is scattered in collections taken in nearshore areas in Lake Michigan. Occasional valves are noted in collections from offshore areas, especially in the fall months.

262 FRPINNAT TCT NC OF STATICNS 191

(60973	CH	1876	1.60605)	(3540	CH	11MY1879	C.06589)	(3541	CH	1FE1881	0.06847)
(3507	CH	19FE1881	0.01132)	(46921	CH	23AC1945	C.00517)	(46917	CH	12JA1946	C.01663)
(46915	CH	20FE1946	0.17641)	(46514	CH	19AP1946	0.02883)	(46924	CH	1CMY1946	C.05714)
(46923	CH	22N01946	0.11147)	(46520	CH	20DE1946	0.06655)	(46905	CH	JA1947	C.13605)
(46905	CH	MR1947	0.07286)	(46516	CH	4MY1947	0.01561)	(46906	CH	MY1947	C.10022)
(46919	CH	5JN1947	0.10925)	(46507	CH	JL1947	0.05375)	(46922	CH	21AU1947	C.03926)
(46758	EV	5JN1937	0.59910)	(46771	EV	11JN1937	C.00238)	(46743	EV	20JN1937	C.23979)
(46764	EV	17JL1937	0.34649)	(46757	EV	25JL1937	0.23109)	(46747	EV	1AU1937	C.34656)
(46763	EV	23AU1937	0.48701)	(46752	EV	15SE1937	1.52373)	(46760	EV	22SE1937	C.08863)
(46750	EV	24SE1937	0.73997)	(46744	EV	6OC1937	0.29750)	(46748	EV	13CC1937	1.43040)
(46767	EV	27OC1937	1.40807)	(46749	EV	12MR1938	0.14565)	(46768	EV	16MR1938	C.17639)
(46762	EV	18MR1938	3.7C534)	(46751	EV	30MR1938	C.62528)	(46756	EV	27AP1938	C.01343)
(46759	EV	19MY1938	0.10466)	(46761	EV	27MY1938	0.04906)	(46766	EV	14DE1938	1.1C900)
(1226	C 7	16MY1964	0.02664)	(1231	E 3	16MY1964	0.00245)	(1232	E 5	16MY1964	0.00348)
(1235	C 7	16JN1964	0.01412)	(1238	D 3	11JN1964	C.00200)	(1240	D 6	10JN1964	C.29605)
(1243	E 6	13JN1964	0.47607)	(1244	F 1	11JN1964	C.00110)	(1251	C 7	16JL1964	C.CC29C)
(1255	D 5	15JL1964	0.00513)	(1256	E 2	14JL1964	C.00183)	(1264	C' 1	10AU1964	C.CC193)
(1267	D 6	18AU1964	C.03026)	(1269	E 3	15AU1964	0.00274)	(1271	C 7	22SE1964	0.C2611)
(1272	C' 1	10SE1964	0.01642)	(1274	D 1	17SE1964	0.00938)	(1275	D 2	17SE1964	C.CC645)
(1276	D 3	18SE1964	0.01118)	(1278	D 6	18SE1964	C.00769)	(1279	E 1	16SE1964	0.0C393)

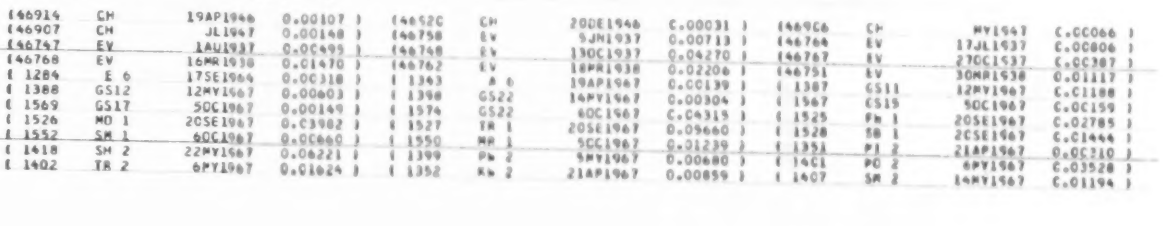


Fragilaria pinnata var. *intercedens* (Grun.) Hust.

Fragilaria mutabile var. *intercedens* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 45, fig. 13. 1881.
Fragilaria pinnata var. *intercedens* (Grun.) Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)2:161. 1931.

Distinguished from the nominate variety by its strictly linear shape, more robust structure and wider axial area. Striae 6-9 in 10μ, shorter than in the nominate variety.

The status of this entity is questionable. Its morphology, except for the lack of marginal spines and presence of cross lineation in the striae, is very similar to the linear forms of *F. spinosa* Skv. The relationship between *F. mutabile* (Wm. Smith) Grun., *F. pinnata* Ehr. and their numerous described varieties and Skvortzow's taxon should be critically reexamined.



Fragilaria pinnata var. *lancettula* (Schum.) Hust.

Fragilaria lancettula Schumann, Schrift. Phys.-Ökon. Ges. Königsberg, pl. 1, fig. 4. 1867.
Fragilaria pinnata var. *lancettula* (Schum.) Hustedt *in*: A. Schmidt, Atlas Diat., pl. 297, figs. 51, 59-64. 1913.

Valves lanceolate with more or less gibbous midportions and protracted, often somewhat unequal ends. Morphology and ornamentation of the frustule essentially similar to the nominate variety.

263 FRPINAVL TOT NO OF STATIONS 67

(6C973	CH		1876	0.07085)	(446521	CH		23NO1945	C.00129)	(446917	CH		12JA1948	C.CCC28)
(46923	CH		22NO1946	0.00219)	(446520	CH		20DE1946	0.00062)	(46965	CH		JA1947	C.CC245)
(46907	CH		JL1947	C.00049)	(446522	CH		21AU1547	C.00048)	(1229	D 5		14MY1564	C.CC211)
(1240	D 6		10JN1964	0.01381)	(1243	E 6		13JN1964	0.01482)	(1244	F 1		11JN1964	C.CC110)
(1264	C* 1		1CAU1964	0.00386)	(1272	C* 1		10SE1964	C.00410)	(1278	D 6		10SE1964	C.CC384)
(1297	D 6		14OC1964	0.01142)	(1301	E 4		13OC1964	0.00442)	(1302	E 5		13OC1964	C.00405)
(1343	A 6		19AP1967	0.00347)	(1536	E 2		24SE1967	0.00273)	(1385	CS 4		16MY1567	C.CC471)
(1387	GS11		12MY1567	0.00792)	(1356	GS20		13MY1567	0.00296)	(1397	GS21		13MY1567	C.CC131)
(1398	GS22		14MY1967	0.00304)	(1554	GS 1		3OC1967	C.00356)	(1555	GS 2		3OC1967	C.00353)
(1557	GS 4		3CC1967	0.00374)	(1560	GS 8		4OC1967	0.00472)	(1565	GS13		5OC1567	C.C4C56)
(1567	GS19		5OC1967	0.00159)	(1569	GS17		5OC1967	0.00149)	(1570	GS18		5OC1967	C.00992)
(1571	GS15		6OC1967	0.00117)	(1572	GS20		6OC1967	C.00631)	(1573	GS21		6OC1567	C.CC224)
(1574	GS22		6OC1967	0.00288)	(1546	LU 1		2OC1967	0.01501)	(1520	MO 1		18SE1967	C.CC943)
(1522	BM 1		18SE1967	0.00729)	(1523	BA 1		19SE1967	C.00923)	(1525	FW 1		2CSE1967	C.C8355)
(1526	MO 1		20SE1967	1.51903)	(1527	TR 1		20SE1967	8.15094)	(1528	SB 1		20SE1967	C.69304)
(1529	KW 1		2GSE1967	2.68617)	(1545	WL 1		2OC1967	0.21623)	(1551	ES 1		5OC1967	C.GC799)
(1552	SM 1		6CC1967	0.13206)	(1550	MR 1		5OC1967	0.33453)	(1553	SG 1		6OC1967	C.03672)
(1626	MS 2		25MY1967	0.C2100)	(1351	MI 2		21AP1967	C.00310)	(1417	PC 2		22MY1967	C.CC748)
(1350	BM 2		19AP1967	0.05947)	(1399	PW 2		5MY1967	0.01360)	(1401	PO 2		6MY1967	0.11759)
(1402	TR 2		6MY1967	0.12454)	(1400	SB 2		6MY1967	0.00596)	(1352	KW 2		21AP1967	C.C6013)
(1354	GM 2		25AP1967	0.00518)	(1404	MC 2		10MY1967	0.16514)	(1405	ES 2		12MY1967	C.C1290)
(1407	SM 2		14MY1967	0.16719)	(1349	CI 2		19AP1967	0.00359)	(1420	IM 2		23MY1967	C.C1511)
(1423	WA 2		25MY1967	0.00856)	(									

Fragilaria spinosa Skv.

Fragilaria mitabilis var. *robusta* Skvortzow and Meyer, Proc. Sungaree River Biol. Station, 1:7, pl. 1, fig. 8. 1928.
Fragilaria spinosa Skvortzow, Phillipine J. Sci., 37:307, pl. 1, figs. 13, 27; pl. 4, figs. 13, 19; pl. 5, figs. 54, 59. 1937.

Cells in girdle view elongate-rectangular, attached by the valve faces into band-shaped colonies. Membranous spines arising from the valve margin overlap the adjacent cell. Valves highly variable in outline, linear-elliptic to lanceolate, often more or less gibbous near the center. Specimens from Lake Michigan 25-46μ long, 5-8μ broad. Striae very coarse, chambered, not extending to the midline of the valve, 5-8 in 10μ, without visible substructure. A submarginal spine is visible between each of the striae. Axial area broad, more or less lanceolate, without visible structure. No specially demarcated central area is present.

Our specimens from Lake Michigan are uniformly narrower than those originally described by Skvortzow, length-width ratios being about 1/5-1/6 rather than 1/3.5-1/5 as in the Lake Baikal material. The structure and ornamentation of the frustule in our specimens is essentially identical to the specimens described by Skvortzow.

This species is rare in our collections, and its recorded distribution indicates that it is a member of the periphyton community in relatively deep water.

Coll: 1395.

Fragilaria vaucheriae (Kütz.) Peters.

Exilaria vaucheriae Kützing, Linnaea, 8:560, pl. 15, fig. 38. 1833.
Synedra vaucheriae (Kütz.) Kützing, Bacill., p. 65, pl. 14(4), figs. 1, 2a, 3. 1844.
Fragilaria vaucheriae (Kütz.) Peterson, Bot. Not. 1938(1/3):167, figs. 1a-b. 1938.

Cells in girdle view linear, united by the valve faces into band-shaped colonies of variable length. Valves elliptic-lanceolate to lanceolate with more or less protracted, usually rostrate, ends. Specimens from Lake Michigan 8-30μ long, 3-4.5μ broad. Axial area narrow, central area unilateral, usually noticeably thickened on its margins. Striae distinct, parallel throughout the length of the valve, 14-16 in 10μ.

This entity is common in periphyton collections but only occasional specimens are noted in plankton collections from Lake Michigan. In general aspect it resembles *F. intermedia* but is distinguished from that species by its finer striae, less strongly silicified frustule, and the presence of a distinctly thickened border around the central area.

(3540	CH	11MY1879	0.00466)	(3541	CH	1FE1881	0.00978)	146910	CH	0C1945	C.0C437)
146921	CH	23NO1945	0.00259)	146508	CH	DE1945	C.02014)	146917	CH	12JA1946	0.00305)
146915	CH	20FE1946	0.04552)	146914	CH	19AP1946	C.C1602)	146924	CH	10MY1946	C.02540)
146923	CH	22NO1946	0.01748)	146920	CH	20DE1946	0.00246)	146909	CH	MR1947	C.02277)
146912	CH	AP1947	0.01150)	146916	CH	4MY1947	C.01221)	146906	CH	MY1947	C.00796)
146919	CH	5JN1947	0.49316)	146907	CH	JL1947	0.00148)	146922	CH	21AU1947	C.CC630)
146758	EV	5JN1937	8.18772)	146771	EV	11JN1937	C.01189)	146743	EV	20JN1937	C.4C250)
146745	EV	3JL1937	0.06270)	146770	EV	9JL1937	1.10925)	146744	EV	17JL1937	2.11120)
146757	EV	25JL1937	0.58736)	146747	EV	1AU1937	C.46043)	146763	EV	23AU1937	4.18019)
146765	EV	30AU1937	0.02789)	146752	EV	15SE1937	0.23944)	146760	EV	22SE1937	C.1C340)
146750	EV	24SE1937	0.29222)	146748	EV	13OC1937	0.10679)	146767	EV	27OC1937	C.05029)
146768	EV	16MR1938	0.07350)	146762	EV	18MR1938	0.24261)	146756	EV	27AP1938	C.CC336)
146759	EV	19MY1938	0.02026)	146761	EV	27MY1938	0.00818)	146766	EV	14DE1938	0.07921)
(1236	C* 1	8JN1964	0.00175)	(1237	C* 2	8JN1964	0.00258)	(1240	D 6	10JA1964	C.CC460)
(1243	E 6	13JN1964	0.00626)	(1244	F 1	11JN1964	0.01425)	(1245	F 2	11JN1964	C.02075)
(1246	F 3	11JN1964	0.01793)	(1252	C* 1	16JL1964	0.00279)	(1255	D 5	15JL1964	C.CC513)
(1259	F 2	8JL1964	0.00310)	(1264	C* 1	10AU1964	0.02124)	(1265	C* 2	10AU1964	C.0C894)
(1266	D 3	18AU1964	0.00351)	(1268	E 2	15AU1964	C.00547)	(1269	E 3	15AU1964	0.00274)
(1270	F 1	10AU1964	0.00272)	(1274	D 1	17SE1964	C.00938)	(1275	D 2	17SE1964	C.00645)
(1279	E 1	16SE1964	0.01178)	(1284	E 6	17SE1964	C.00318)	(1285	F 1	15SE1964	C.CC406)
(1298	E 1	12OC1964	0.00539)	(1299	E 2	12OC1964	C.00314)	(1301	E 4	13OC1964	C.00442)
(1304	F 1	11OC1964	0.00247)	(1316	D 5	9NO1964	C.00378)	(1318	E 2	7NO1964	0.00380)
(1319	E 3	7NO1964	0.00262)	(1320	E 4	7NO1964	0.00207)	(1341	A 3	19AP1967	C.CC108)
(1343	A 6	19AP1967	0.00208)	(1374	E 2	7MY1967	C.00299)	(1410	A 6	24MY1967	C.00564)
(1432	A 4	13JN1967	0.00255)	(1451	C 7	16JL1967	0.00197)	(1454	E 5	15JL1967	C.00200)
(1509	C 3	25E1967	C.CC400)	(1511	E 2	1SE1967	0.00307)	(1534	A 6	19SE1967	C.CC310)
(1536	E 2	24SE1967	0.00818)	(1537	E 3	24SE1967	C.00431)	(1538	E 5	23SE1967	C.C994)
(1540	C 5	4OC1967	C.00496)	(1541	E 2	11CC1967	0.04790)	(1542	E 3	11OC1967	C.03051)
(1543	E 5	10OC1967	0.01637)	(1379	GS 3	9MY1967	C.00309)	(1380	GS 4	9MY1967	C.00168)
(1382	GS 6	10MY1967	0.01388)	(1384	GS 8	10MY1967	0.00185)	(1387	GS11	12MY1967	C.00714)
(1392	GS10	12MY1967	0.00308)	(1394	GS18	13MY1967	C.01032)	(1395	GS19	13MY1967	C.CC235)
(1396	GS20	13MY1967	0.00148)	(1397	GS21	13MY1967	C.00196)	(1398	GS22	14MY1967	C.00607)
(1554	GS 1	30C1967	0.02491)	(1555	GS 2	3CC1967	C.00706)	(1556	GS 3	30C1967	C.00521)
(1557	GS 4	30C1967	0.02242)	(1562	GS1C	5OC1967	C.00493)	(1565	GS13	5OC1967	C.02535)
(1566	GS14	5OC1967	0.00183)	(1568	GS16	5OC1967	C.00144)	(1569	GS17	5OC1967	C.00149)
(1570	GS18	5OC1967	0.01983)	(1572	GS20	6OC1967	0.00270)	(1573	GS21	6OC1967	C.00112)
(1574	GS22	6OC1967	0.07766)	(1575	GS28	6OC1967	C.00387)	(1544	PU 1	20C1967	C.1C246)
(1547	MS 1	20C1967	0.09581)	(1524	MI 1	20SE1967	C.08757)	(1546	LU 1	20C1967	1.28045)
(1520	MO 1	18SE1967	0.02829)	(1521	SH 1	18SE1967	0.02308)	(1522	RH 1	18SE1967	C.0C365)
(1523	PA 1	19SE1967	0.00923)	(1526	MO 1	20SE1967	0.12516)	(1527	TR 1	20SE1967	C.30189)
(1528	SB 1	20SE1967	0.15882)	(1529	KW 1	20SE1967	2.49430)	(1530	FR 1	24SE1967	C.33003)
(1545	WL 1	2CC1967	21.73119)	(1548	CA 1	30C1967	0.01272)	(1549	PQ 1	4OC1967	C.04111)
(1551	ES 1	5OC1967	0.00799)	(1552	SM 1	6CC1967	0.01981)	(1550	PR 1	5OC1967	C.35931)
(1553	SG 1	6OC1967	0.03672)	(1428	MU 2	29MY1967	0.00603)	(1427	LU 2	29MY1967	C.03632)
(1417	MO 2	22MY1967	0.01495)	(1350	BH 2	19AP1967	0.07929)	(1425	RA 2	25MY1967	C.0C884)
(1399	PH 2	5MY1967	0.04081)	(1402	TR 2	6MY1967	0.02707)	(1400	SB 2	4MY1967	C.02383)
(1352	KW 2	21AP1967	0.07731)	(1354	GH 2	25AP1967	0.00345)	(1429	WL 2	29MY1967	C.04247)
(1403	CA 2	10MY1967	2.30156)	(1404	MC 2	10MY1967	0.07622)	(1405	ES 2	12MY1967	C.03225)
(1407	SM 2	14MY1967	0.04777)	(1349	CI 2	19AP1967	0.00359)	(1406	SG 2	13MY1967	0.02965)
(1419	BU 2	23MY1967	0.01831)	(1420	IH 2	23MY1967	0.03021)	(			

Fragilaria vaucheriae var. *capitellata* (Grun.) Patr.

Synedra capitellata Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 40, fig. 26. 1881.
Synedra vaucheriae var. *capitellata* (Grun.) Cleve, J. Linnean Soc. London, Bot., 20:314. 1883.
Fragilaria vaucheriae var. *capitellata* (Grun.) Patrick, Akad. Nat. Sci. Philadelphia Monogr. 13:121. 1966.

Valves lanceolate with subcapitate to capitate ends. Specimens from Lake Michigan 15-50μ long, 3-4μ broad. Striae somewhat finer than in the nominate variety, 14-18 in 10μ. Other features of morphology and ornamentation of the frustule essentially similar to the nominate variety.

This entity is quite common in plankton collections from Lake Michigan. It is somewhat questionable that forms having a much expanded central area such as illustrated by Patrick (Patrick and Reimer 1966) belong to this taxon.

697 SYVALCVC TOT NO OF STATIONS 36

(46917	CH	12JA1946	0.00028)	(46914	CH	19AP1946	0.00107)	(46923	CH	22ND1946	0.00219)		
(46909	CH	MR1947	0.00455)	(46912	CH	AP1947	0.01150)	(46916	CH	4MY1947	0.00170)		
(46758	EV	5JN1937	0.93431)	(46743	EV	20JA1937	0.00856)	(46745	EV	3JL1937	0.04180)		
(46747	EV	1AU1937	0.00495)	(46763	EV	23AU1937	0.04058)	(46752	EV	15SE1937	0.06530)		
(1244	F 1	11JN1964	0.00219)	(1258	F 1	6JL1964	0.00708)	(1259	F 2	6JL1964	0.00620)		
(1260	F 2	6JL1964	0.00573)	(1279	E 1	16SE1964	0.00785)	(1281	E 3	16SE1964	0.00392)		
(1285	F 1	15SE1964	0.04659)	(1297	D 6	14DC1964	0.00190)	(1510	C 7	29AU1967	0.00316)		
(1511	E 2	15E1967	0.00307)	(1379	GS 3	9MY1967	0.00619)	(1382	GS 6	10MY1967	0.00278)		
(1387	GS11	12MY1967	0.01188)	(1388	GS12	12MY1967	0.00603)	(1557	GS 4	30C1967	0.00374)		
(1561	GS 9	4DC1967	0.00587)	(1563	GS11	5CC1967	0.00234)	(1565	GS13	50C1967	0.00507)		
(1567	GS15	5CC1967	0.00159)	(1574	GS22	6CC1967	0.00863)	(1546	LU 1	20C1967	0.00500)		
(1526	MQ 1	20SE1967	0.00565)	(1549	MQ 1	4CC1967	0.01370)	(1552	SM 1	60C1967	0.00660)		
(1550	MR 1	50C1967	0.02478)	(1403	CA 2	10MY1967	0.32693)	(1404	MQ 2	10MY1967	0.07622)		

Fragilaria vaucheriae var. *truncata* (Grev.)

Exilaria truncata Greville, *in*: Pritchard, Hist. Infus., p. 789. 1861.
Synedra vaucheriae var. *truncata* (Grev.) Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 40, fig. 20. 1881.

Valves linear with rostrate to subcapitate apices. Other features of the morphology and ornamentation of the frustule essentially similar to the nominate variety.

This entity is relatively rare in our collections. Previous reports indicate that it finds its primary habitat in the periphyton.

695 SYVALCVT TOT NO OF STATIONS 2

(1265	C* 2	1CAU1964	0.00224)	(1341	A 3	15AP1967	0.00217)	(

Species *incertae sedis*

Fragilaria sp. #1.

266 FRSPECOA TOT NO OF STATIONS 6

(1565	GS13	5CC1967	0.04563)	(1550	MR 1	50C1967	0.06195)	(1350	BM 2	15AP1967	0.01101)
(1354	GM 2	25AP1967	0.00173)	(1404	MQ 2	10MY1967	0.03811)	(1420	IM 2	23MY1967	0.10574)

Fragilaria sp. #7.

270 FRSPECOG TOT NO OF STATIONS 223

(60973	CH	1876	0.37789	(3540	CH	11MY1875	C.01864	(3541	CH	1FE1881	C.22498
(46910	CH	OC1945	0.00983	(46521	CH	23NO1945	C.25222	(46908	CH	DE1945	C.46324
(46917	CH	12JA1946	0.02246	(46515	CH	20FE1946	C.11950	(46914	CH	19AP1946	C.0C427
(46924	CH	10MY1946	0.02116	(46523	CH	22NO1946	0.07868	(46920	CH	20DE1946	1.24165
(46905	CH	JA1947	0.03922	(46509	CH	MR1947	0.05464	(46912	CH	AP1947	C.24146
(46916	CH	6MY1947	1.38939	(46506	CH	MY1947	1.16478	(46919	CH	5JN1947	C.01214
(46907	CH	JL1947	1.18594	(46513	CH	6AU1947	0.04184	(46922	CH	21AU1947	C.5C403
(46771	EV	11JN1937	0.01426	(46743	EV	20JN1937	0.59947	(46745	EV	3JL1937	C.04180
(46770	EV	9JL1937	0.27432	(46764	EV	17JL1937	0.05641	(46757	EV	25JL1937	C.01444
(46747	EV	1AU1937	0.01238	(46763	EV	23AU1937	0.87256	(46765	EV	30AU1937	C.0C558
(46769	EV	7SE1937	0.02171	(46760	EV	22SE1937	C.01477	(46744	EV	6OC1937	C.0C488
(46767	EV	27OC1937	0.00774	(46749	EV	12MR1938	0.02427	(46768	EV	16MR1938	C.C5880
(46762	EV	18MR1938	0.08822	(46751	EV	30MR1938	C.02233	(46756	EV	27AP1938	C.0C5C4
(46761	EV	27MY1938	0.00818	(46766	EV	14DE1938	0.03169	(1439	B 6	5JN1964	C.C2198
(1440	B 6	11JN1964	0.13266	(1441	B 6	24JL1964	0.03965	(1250	C 6	1OJL1964	C.25899
(1251	C 7	16JL1964	0.01159	(1252	C* 1	16JL1964	0.10042	(1253	C* 2	18JL1964	C.0C913
(1254	D 2	15JL1964	0.01532	(1255	D 5	15JL1964	C.09753	(1256	E 2	14JL1964	C.01649
(1257	E 3	14JL1964	0.04307	(1258	F 1	6JL1964	C.33037	(1259	F 2	8JL1964	C.39353
(1260	F 3	6JL1964	2.00546	(1442	B 6	2AU1964	1.43296	(1443	B 6	16AU1964	1.79892
(1444	B 6	19SE1964	0.04244	(1271	C 7	22SE1964	C.00653	(1272	C* 1	1OSE1964	C.3C374
(1273	C* 2	10SE1964	0.26883	(1274	D 1	17SE1964	0.50673	(1275	D 2	17SE1964	C.9C317
(1276	D 3	18SE1964	0.04470	(1277	D 4	18SE1964	C.C8675	(1278	D 6	18SE1964	C.C2690
(1279	E 1	16SE1964	C.07068	(1280	E 2	16SE1964	0.30635	(1281	E 3	16SE1964	3.02162
(1282	E 4	16SE1964	0.58726	(1283	E 5	16SE1964	C.66201	(1284	E 6	17SE1964	C.25736
(1285	F 1	15SE1964	0.54743	(1286	F 2	15SE1964	0.18608	(1287	F 3	15SE1964	C.59548
(1445	B 6	14OC1964	0.00978	(1293	D 2	15OC1964	C.01415	(1296	D 5	14OC1964	C.00787
(1297	D 6	14OC1964	0.00762	(1300	E 3	13OC1964	C.00716	(1304	F 1	11OC1964	C.00988
(1305	F 2	11OC1964	0.00518	(1306	F 3	11OC1964	C.01109	(13C8	C 7	4NO1964	0.00912
(1310	C* 2	10NO1964	0.00227	(1311	D 1	8NO1964	C.00774	(1312	D 2	8NC1964	C.0C310
(1317	E 1	6NO1964	0.0C383	(1318	E 2	7NO1964	C.66587	(1319	E 3	7NO1964	0.0C524
(1320	E 4	7NO1964	0.01241	(1321	E 5	7NO1964	0.02554	(1322	E 6	7NC1964	C.C2000
(1323	F 1	6NO1964	0.32613	(1324	F 2	6NC1964	C.09783	(1336	C 3	27JA1967	C.01348
(1337	C 3	2MR1967	0.00882	(1338	C 3	28MR1967	C.C0264	(1339	C 5	28MR1967	C.01247
(1340	C 7	28MR1967	0.00291	(1341	A 3	19AP1967	0.00434	(1342	A 4	19AP1967	C.C2707
(1343	A 6	19AP1967	0.00417	(1344	C 3	25AP1967	C.00331	(1345	C 5	25AP1967	C.0C585
(1346	C 7	21AP1967	0.00534	(1347	E 2	23AP1967	C.00813	(1348	E 5	23AP1967	C.01508
(1368	A 3	4MY1967	0.01571	(1369	A 4	4MY1967	C.00373	(1370	A 6	3MY1967	C.C2222
(1371	C 3	4MY1967	0.00693	(1372	C 5	5MY1967	C.00709	(1373	C 7	5MY1967	C.00285
(1374	E 2	7MY1967	0.02092	(1375	E 3	7MY1967	0.01203	(1376	E 5	6MY1967	0.03935
(1408	A 3	23MY1967	0.02683	(1409	A 4	23MY1967	C.04463	(1410	A 6	24MY1967	C.C7894
(1411	C 3	31MY1967	0.01641	(1412	C 5	31MY1967	C.02105	(1413	C 7	25MY1967	C.01264
(1414	E 2	28MY1967	0.01679	(1415	E 3	28MY1967	C.01124	(1416	E 5	28MY1967	C.01C93
(1431	A 3	12JN1967	0.03605	(1432	A 4	13JN1967	C.28609	(1433	C 3	17JN1967	C.C1938
(1434	C 5	17JN1967	0.00299	(1435	C 7	13JN1967	0.01579	(1436	E 2	15JN1967	0.0C724
(1437	E 3	15JN1967	0.00269	(1438	E 5	14JN1967	0.00726	(1446	A 3	11JL1967	C.00978
(1447	A 4	11JL1967	0.57307	(1448	A 6	10JL1967	0.00354	(1449	C 3	16JL1967	C.02675
(1450	C 5	16JL1967	0.66648	(1452	E 2	14JL1967	C.01044	(1454	E 5	15JL1967	C.28006
(1505	A 4	28AU1967	0.19582	(1506	A 6	29AU1967	0.01569	(1508	C 3	25E1967	C.07194
(1509	C 5	25E1967	1.15070	(1510	C 7	29AU1967	C.04110	(1511	E 2	15E1967	C.04604
(1512	E 3	15E1967	0.13743	(1513	E 5	31AU1967	0.10135	(1532	A 3	18SE1967	C.C2213
(1533	A 4	19SE1967	0.13462	(1534	A 6	19SE1967	0.00310	(1535	C 7	20SE1967	C.C1288
(1536	E 2	24SE1967	0.20178	(1537	E 3	24SE1967	C.06038	(1538	E 5	23SE1967	C.01657
(1539	C 3	4OC1967	0.00503	(1540	C 5	4OC1967	0.01985	(1541	E 2	11OC1967	C.04257
(1542	E 3	11OC1967	0.04068	(1543	E 5	10OC1967	C.04310	(1377	GS 1	9MY1967	C.0C792
(1379	GS 3	9MY1967	0.01547	(1380	GS 4	9MY1967	0.00841	(1381	GS 5	10MY1967	C.01431
(1382	GS 6	10MY1967	0.00555	(1386	GS1C	12MY1967	0.00287	(1387	GS11	12MY1967	C.0C792
(1389	GS13	12MY1967	0.00516	(1390	GS14	12MY1967	0.01174	(1391	GS15	12MY1967	C.C0458
(1392	GS16	12MY1967	0.00616	(1393	GS17	13MY1967	C.01096	(1394	GS18	13MY1967	C.0C344
(1398	GS22	14MY1967	0.01214	(1554	GS 1	3DC1967	C.03202	(1555	GS 2	3DC1967	C.06356
(1556	GS 3	3DC1967	0.07822	(1557	GS 4	3DC1967	0.28774	(1558	GS 5	4DC1967	0.2C612
(1559	GS 7	4DC1967	0.30776	(1560	GS 8	4DC1967	C.07084	(1561	GS 9	4DC1967	C.0E604
(1562	GS10	5DC1967	0.29358	(1563	GS11	5DC1967	0.00935	(1564	GS12	5DC1967	C.15965
(1566	GS14	5DC1967	0.00734	(1567	GS15	5DC1967	C.04922	(1568	GS16	5DC1967	C.C3896
(1569	GS17	5DC1967	0.08770	(1570	GS18	5DC1967	C.02975	(1571	GS19	6DC1967	C.0C176
(1573	GS21	6DC1967	0.01008	(1574	GS22	6DC1967	C.02301	(1547	PS 1	2DC1967	C.54291
(1546	LU 1	2DC1967	0.01501	(1521	SH 1	18SE1967	0.01731	(1526	PO 1	20SE1967	C.01707
(1528	SB 1	20SE1967	0.05775	(1529	KN 1	20SE1967	C.02398	(1548	CA 1	3DC1967	1.6C285
(1549	MQ 1	4DC1967	0.12334	(1551	ES 1	5DC1967	C.45531	(1550	PR 1	5DC1967	C.01239
(1426	MS 2	29MY1967	0.02100	(1417	MQ 2	22MY1967	0.00748	(1425	RA 2	25MY1967	C.01768
(1399	PW 2	5MY1967	0.29244	(1401	MQ 2	6MY1967	0.04704	(1402	TR 2	6MY1967	C.02166
(1400	SB 2	6MY1967	0.37527	(1352	KN 2	21AP1967	C.21474	(1354	GR 2	25AP1967	0.0C690
(1403	CA 2	10MY1967	1.21616	(1404	MC 2	10MY1967	0.06352	(1405	ES 2	12MY1967	C.C1290
(1407	SM 2	14MY1967	0.01194	(1349	CI 2	19AP1967	0.02155	(1419	BU 2	23MY1967	C.07323
(1420	IM 2	23MY1967	0.09063	(1421	GH 2	23MY1967	0.08675	(1422	GA 2	23MY1967	C.01533
(1424	KN 2	25MY1967	C.06661	(							

Fragilaria sp. #8 (*F. crotonensis* erstlingzellen ?).

271 FRSPECOH TOT NO OF STATIONS 28

(60973	CH	1876	0.30704	(46513	CH	6AU1947	C.01046	(46771	EV	11JN1937	C.CC238
(46770	EV	9JL1937	0.02385	(46764	EV	17JL1937	0.04835	(46757	EV	25JL1937	C.0C481
(46747	EV	1AU1937	0.00742	(46750	EV	24SE1937	C.00471	(46744	EV	6OC1937	C.0C488
(46767	EV	27OC1937	0.0C774	(46761	EV	27MY1938	0.00273	(46766	EV	14DE1938	C.03169
(1260	F 3	6JL1964	0.0C191	(1443	B 6	16AU1964	C.00198	(1270	F 1	1OAU1964	C.CC817
(1304	F 1	11OC1964	0.22474	(1305	F 2	11OC1964	C.02243	(1306	F 3	11OC1964	C.C1109
(1315	D 5	9NO1964	0.00455	(1316	D 6	9NO1964	C.01133	(1318	E 2	7NO1964	C.CC380
(1323	F 1	6NO1964	0.24390	(1324	F 2	6NO1964	C.19332	(1325	F 3	6NO1964	C.23678
(1451	C 7	16JL1967	0.03937	(1383	GS 7	10MY1967	0.00267	(1387	GS11	12MY1967	C.0C396
(1423	WA 2	25MY1967	0.00428	(							

Fragilaria sp. #9.

272 FRSPECOI ICT NO OF STATIONS 15

(46915	CH	20FE1946	0.01138)	(46516	CH	4MY1947	0.00271)	(46919	CH	5JN1947	C.CC455)
(46743	EV	20JN1937	0.00856)	(46757	EV	25JL1937	0.00481)	(46763	EV	23AU1937	C.02029)
(46752	EV	15SE1937	0.02177)	(1258	F 1	6JL1964	0.03540)	(1259	F 2	6JL1964	C.02479)
(1260	F 3	6JL1964	0.00573)	(1272	C* 1	10SE1964	0.00410)	(1284	E 6	17SE1964	C.00635)
(1285	F 1	19SE1964	C.09900)	(1492	E 2	14JL1967	C.00639)	(1558	GS 5	4OC1967	C.CC793)

Fragilaria sp. #10.

273 FRSPECOJ ICT NO OF STATIONS 10

(46924	CH	10MY1946	0.00071)	(46516	CH	4MY1947	C.00136)	(46919	CH	5JN1947	C.CC910)
(46922	CH	21AU1947	0.00048)	(46743	EV	20JN1937	0.00428)	(46757	EV	25JL1937	C.00481)
(1259	F 2	6JL1964	C.CC930)	(1285	F 1	15SE1964	0.01165)	(1403	CA 2	10MY1967	C.46693)
(1404	MO 2	10MY1967	0.02541)	(							

Fragilaria sp. #11.

274 FRSPECOK ICT NO OF STATIONS 4

(46909	CH	MR1947	C.CC455)	(46516	CH	4MY1947	0.00204)	(1449	C 3	16JL1967	C.CC382)
(1530	FR 1	24SE1967	C.C1CCC)	(							

Fragilaria sp. #15.

275 FRSPECOO ICT NO OF STATIONS 1

(1406	CB 2	13MY1967	C.CC27C)

Fragilaria "crotonensis" . . tenuissima."

245 FRCROTVA ICT NO OF STATIONS 136

(60973	CH	1876	0.56684)	(3540	CH	11MY1876	0.04659)	(3541	CH	1FE1881	C.02935)
(3507	CH	19FE1881	0.06792)	(46510	CH	OC1965	C.10159)	(46921	CH	23NO1945	C.02457)
(46908	CH	DE1945	0.02014)	(46517	CH	12JA1946	0.04491)	(46915	CH	20FE1946	C.1C812)
(46914	CH	19AP1946	0.00747)	(46524	CH	10MY1946	0.22927)	(46920	CH	20DE1946	C.24032)
(46905	CH	JA1947	0.19933)	(46909	CH	MR1947	C.01821)	(46912	CH	AP1947	C.52892)
(46916	CH	MY1947	0.02613)	(46506	CH	MY1947	C.01062)	(46907	CH	JL1947	C.19231)
(46913	CH	6AU1947	0.09413)	(46922	CH	21AU1947	0.02423)	(46758	EV	5JN1937	C.09628)
(46771	EV	11JN1937	0.12125)	(46743	EV	20JN1937	0.16271)	(46745	EV	3JL1937	C.12539)
(46770	EV	9JL1937	0.30415)	(46764	EV	17JL1937	C.37067)	(46757	EV	25JL1937	C.13480)
(46747	EV	1AU1937	0.34656)	(46763	EV	23AU1937	C.52760)	(46765	EV	30AU1937	C.10039)
(46769	EV	7SE1937	0.04342)	(46752	EV	15SE1937	C.08707)	(46760	EV	225E1937	C.43331)
(46750	EV	24SE1937	0.41476)	(46744	EV	4OC1937	0.88763)	(46748	EV	13C1937	C.08540)
(46767	EV	27OC1937	0.36362)	(46749	EV	12NR1938	0.32771)	(46768	EV	14MR1938	C.1C290)
(46762	EV	18MR1938	C.77195)	(46751	EV	30MR1938	C.04466)	(46772	EV	18AP1938	C.04988)
(46756	EV	27AP1938	0.03022)	(46759	EV	19MY1938	C.C5402)	(46761	EV	27MY1938	C.05451)
(46766	EV	14DE1938	0.22180)	(1377	GS 1	9MY1967	0.01187)	(1378	GS 2	9MY1967	C.0C841)
(1379	GS 3	9MY1967	0.13927)	(1380	GS 4	9MY1967	C.17152)	(1381	GS 5	10MY1967	C.09302)
(1382	GS 6	10MY1967	0.01665)	(1383	GS 7	10MY1967	0.08287)	(1384	GS 8	10MY1967	C.02033)
(1385	GS 9	10MY1967	0.01413)	(1386	GS10	12MY1967	0.03160)	(1387	GS11	12MY1967	C.15447)
(1388	GS12	12MY1967	0.04223)	(1390	GS14	12MY1967	0.05285)	(1391	GS15	12MY1967	C.02394)
(1392	GS16	12MY1967	0.18183)	(1393	GS17	13MY1967	0.05479)	(1394	GS18	13MY1967	C.12729)
(1395	GS19	13MY1967	0.08690)	(1396	GS20	13MY1967	0.01258)	(1397	GS21	13MY1967	C.0C392)
(1398	GS22	14MY1967	0.15788)	(155	GS 1	30C1967	C.99623)	(1555	GS 2	30C1967	C.06003)
(1556	GS 3	30C1967	0.18772)	(1557	GS 4	30C1967	C.97160)	(1558	GS 5	4OC1967	C.73728)
(1559	GS 7	4OC1967	0.41617)	(1560	GS 8	4OC1967	C.17003)	(1561	GS 9	4OC1967	C.21130)
(1562	GS10	5OC1967	0.26844)	(1563	GS11	5OC1967	C.14497)	(1564	GS12	5OC1967	C.14484)
(1566	GS14	5OC1967	0.0?o87)	(1567	GS15	5OC1967	0.12384)	(1568	GS16	5OC1967	C.15584)
(1569	GS17	5OC1967	0.27054)	(1570	GS18	5OC1967	C.69417)	(1571	GS19	6OC1967	C.03278)
(1572	GS20	6OC1967	0.03064)	(1573	GS21	6OC1967	C.14223)	(1574	GS22	6OC1967	C.12944)
(1575	GS23	6OC1967	0.02709)	(1544	MU 1	20C1967	0.04766)	(1547	PS 1	20C1967	C.41517)
(1524	MI 1	20SE1967	0.94133)	(1546	LU 1	20C1967	C.04001)	(1520	MO 1	18SE1967	C.39606)
(1521	SH 1	18SE1967	2.21555)	(1522	BH 1	18SE1967	0.00912)	(1523	MA 1	19SE1967	2.06642)
(1525	PW 1	20SE1967	0.79376)	(1526	MO 1	20SE1967	0.32429)	(1527	TR 1	20SE1967	C.C7547)
(1528	SB 1	2CSE1967	0.46203)	(1529	KW 1	20SE1967	0.34776)	(1530	FR 1	24SE1967	C.15001)
(1531	GH 1	25SE1967	0.02536)	(1545	WL 1	20C1967	0.14866)	(1548	CA 1	30C1967	C.11449)
(1549	MO 1	4OC1967	0.10963)	(1551	ES 1	5OC1967	0.45531)	(1550	PR 1	5OC1967	C.C6195)
(1553	SG 1	6OC1967	0.13220)	(1428	MU 2	29MY1967	0.03917)	(1426	PS 2	29MY1967	C.07349)
(1351	MI 2	21AP1967	0.01552)	(1427	LU 2	29MY1967	0.01211)	(1417	MO 2	22MY1967	C.05982)
(1418	SH 2	22MY1967	0.31104)	(1425	MA 2	25MY1967	0.45973)	(1399	PW 2	5MY1967	C.06121)
(1401	MO 2	6PY1967	0.07056)	(1402	TR 2	6MY1967	C.18952)	(1400	SB 2	6MY1967	C.05361)
(1352	KW 2	21AP1967	0.30064)	(1353	FR 2	23AP1967	0.02110)	(1354	GH 2	25AP1967	C.01036)
(1429	WL 2	25MY1967	0.06370)	(1403	CA 2	10MY1967	0.06539)	(1404	PC 2	10MY1967	C.03811)
(1405	ES 2	12MY1967	0.14190)	(1407	SM 2	14MY1967	0.14331)	(1349	CI 2	19AP1967	C.06825)
(1406	GB 2	13MY1967	0.02157)	(1419	BU 2	23MY1967	C.12816)	(1421	CH 2	23MY1967	C.C8675)
(1422	GA 2	23MY1967	0.10218)	(1423	WA 2	25MY1967	0.50529)	(1424	MN 2	25MY1967	C.37303)
(1430	MC 2	12JN1967	0.02467)	(							

Genus *Frustulia* Rabh. (nom. cons. non Agardh 1824)
Rabenhorst, Sussw.-Diat., p. 50. 1853.

Most members of the genus *Frustulia* find their primary habitat in benthic communities. The occasional specimens that are noted in plankton collections from Lake Michigan are probably derived from such habitats.

Frustulia rhomboides (Ehr.) De Toni

Navicula rhomboides Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:419, pl. 3(1), fig. 15. 1843.
Frustulia rhomboides (Ehr.) De Toni, Syll. Alg. Vol. 2, Sect. 1, p. 277. 1891.

276 FURHCMBO TOT NO OF STATIONS 2

[46906	CH	MY1947	0.00066)	[46907	CH	JL] 47	C.00049)	[			

Frustulia rhomboides var. *amphipleuroides* (Grun.) Cleve

Navicula rhomboides var. *amphipleuroides* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):47, pl. 3, fig. 59. 1880.
Frustulia rhomboides var. *amphipleuroides* (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):123. 1894.

277 FURHOMVA TOT NO OF STATIONS 10

[A0973	CH	1E76	0.02362)	[3541	CH	1FE1881	C.00578)	[46921	CH	23NO1965	C.00065)
[46924	CH	10MY1946	0.00071)	[46923	CH	22NO1946	0.00437)	[46920	CH	20DE1946	C.00031)
[46919	CH	5JN1947	0.10925)	[1388	GS12	12MY1567	0.00603)	[1569	GS17	50C1967	C.00149)
[1550	MR 1	5CC1967	0.01239)	[							

Frustulia rhomboides var. *saxonica* (Rabh.) De Toni

Frustulia saxonica Rabenhorst, Süssw.-Diat., p. 50, pl. 7, fig. 1. 1853.
Frustulia rhomboides var. *saxonica* (Rabh.) De Toni, Syll. Alg., Vol. 2, Sect. 1, p. 277. 1891.

278 FURHCPVS TOT NO OF STATIONS 2

[3540	CH	11MY1879	0.00468)	[1254	C 2	15JL1964	C.00192)	[			

Frustulia vulgaris (Thw.) De Toni

Schizonema vulgare Thwaites, Annals Mag. Nat. Hist., Ser. 2, 1:170, pl. 12(H), fig. 1-5. 1848.
Frustulia vulgaris (Thw.) De Toni, Syll. Alg., Vol. 2, Sect. 1, p. 280. 1891.

279 FUVULGAR TOT NO OF STATIONS 5

[46748	EV	13CC1937	C.02135)	[1285	F 1	15SE1964	0.00582)	[1341	A 3	19AP1967	C.[C325)
[1431	A 3	12JN1567	0.00257)	[1350	BH 2	19AP1967	0.00220)	[			

Frustulia weinholdii Hust.

Frustulia weinholdii Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschlands, Vol. 7(2)5:731, fig. 1101. 1937.

280 FUWEINHO TOT NO OF STATIONS 1

[46915	CH	5JN1547	0.00152)	[							

Genus *Gomphoneis* Cleve

Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):73. 1894.

The members of the genus *Gomphoneis* noted in our collections are dominant entities in periphyton communities in many areas of the upper Great Lakes. The occasional specimens noted in our collections are undoubtedly derived from such habitats.

Gomphoneis eriense (Grun.) Skv.

Gomphonema eriense Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 23, fig. 10. 1880.
Gomphoneis eriense (Grun.) Skvortzow, Proc. Sungaree River Biol. Sta., 1(5):28. 1928.

281 GSERIENS TCT NO OF STATIONS 1
(1406 GB 2 13PY1967 0.00270) (

Gomphoneis herculeanum (Ehr.) Cleve

Gomphonema herculeanum Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:78. 1845.
Gomphoneis herculeanum (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):73. 1894.

282 GSHERCUL TCT NO OF STATIONS 1
(46770 EV 9JL1937 0.00596) (

Genus *Gomphonema* Agardh
Agardh, Syst. Alg., p. 15. 1824.

Most members of the genus *Gomphonema* find their primary habitat in periphyton communities. A relatively small proportion of the species occurring in such habitats in Lake Michigan are also taken in plankton collections.

Gomphonema abbreviatum Kützz.

Gomphonema abbreviatum Kützing, Bacill., p. 84, pl. 8, figs. 5-6. 1844.

283 GCABBREV TCT NO OF STATIONS 2
(46921 CH 23NO1949 0.00065) (1236 CH 1 8JA1964 0.00175) (

Gomphonema abbreviatum var. *inflata* Hust.

Gomphonema abbreviatum var. *inflata* Hustedt, Arch. Hydrobiol., 47(4):630, fig. 21. 1953.

Coll: 1550.

Gomphonema acuminatum var. *brebissonii* (Kütz.) Grun.

Gomphonema brebissonii Kützing, Sp. Alg., p.66. 1849.
Gomphonema acuminatum var. *brebissonii* (Kütz.) Grunow *in*: Syn. Diat. Belgique, pl. 23, figs. 23-26. 1880.

284 GCACUBIN TCT NO OF STATIONS 1
(1354 GH 2 25AP1967 0.00173) (

Gomphonema acuminatum var. *coronata* (Ehr.) Raöh.

Gomphonema coronatum Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:17. 1841.
Gomphonema acuminatum var. *coronata* (Ehr.) Rabenhorst, Fl. Europaea Alg., Sect. I, p. 124. 1864.

285 GCACUBVC TCT NO OF STATIONS 1
(46917 CH 12JA1946 0.00055) (

Gomphonema acuminatum var. *pusillum* Grun.

Gomphonema acuminatum var. *pusillum* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 23, fig. 19. 1880.

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286  GCACUMVP TCT NO OF STATIONS    1

( 1350    BH 2      19AP1967   0.00220 )   (
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Gomphonema angustatum (Kütz.) Rabh.

Sphenella angustata Kützing, Bacill., p. 83, pl. 8, fig. 4. 1844.
Gomphonema angustatum (Kütz.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 283. 1864.

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287  GCANGUST TCT NO OF STATIONS   22

(46758    EV        5JN1937   0.00357 )   (46763    EV        23AU1937   0.02029 )   ( 1236    C* 1      8JN1964    0.00175 )
( 1377    GS 1      9MY1967   0.00396 )   ( 1544    MU 1      20C1967    0.00238 )   ( 1546    LU 1      20C1967    0.01000 )
( 1520    MO 1      18SE1967  0.00943 )   ( 1521    SM 1      18SE1967   0.00577 )   ( 1522    EM 1      18SE1967   0.00369 )
( 1531    GM 1      25SE1967  0.00845 )   ( 1545    WL 1      20C1967    0.00676 )   ( 1550    PR 1      50C1967    0.03717 )
( 1428    MU 2      29MY1967  0.00904 )   ( 1426    MS 2      29MY1967   0.01050 )   ( 1427    LU 2      29MY1967   0.03632 )
( 1417    MO 2      22MY1967  0.00748 )   ( 1350    BH 2      19AP1967   0.03524 )   ( 1400    SB 2      6MY1967    0.02383 )
( 1354    GM 2      25AP1967  0.00173 )   ( 1429    WL 2      29MY1967   0.01062 )   ( 1403    CA 2      10MY1967   0.01308 )
( 1404    MO 2      10MY1967  0.03811 )   (
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Gomphonema angustatum var. *producta* Grun.

Gomphonema angustatum var. *producta* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 24, figs. 52-55. 1880.

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288  GCANGUVP TCT NO OF STATIONS    6

(46758    EV        5JN1937   0.01783 )   ( 1264    C* 1      10AU1964   0.00193 )   ( 1389    GS13      12MY1967   0.00258 )
( 1367    GS15      5OC1967   0.00159 )   ( 1545    WL 1      20C1967    0.00676 )   ( 1549    MO 1      4OC1967    0.01370 )
( 1417    MO 2      22MY1967  0.00374 )   ( 1350    BH 2      19AP1967   0.00441 )   ( 1400    SB 2      6MY1967    0.00596 )
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Gomphonema angustatum var. *sarcophagus* (Greg.) Grun.

Gomphonema sarcophagus Gregory, Micr. J., 4:13, pl. 1, fig. 42. 1856.
Gomphonema angustatum var. *sarcophagus* (Greg.) Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 25, fig. 2. 1880.

Coll: 1331.

Gomphonema clevei Fricke

Gomphonema clevei Fricke *in*: A. Schmidt, Atlas Diat., pl. 234, figs. 44-46. 1902.

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289  GOCLEVEI TCT NO OF STATIONS    3

( 1571    GS19      6OC1967   0.00117 )   ( 1530    FR 1      24SE1967   0.01000 )   ( 1550    PR 1      50C1967    0.04956 )
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Gomphonema constrictum Ehr.

Gomphonema constrictum Ehrenberg, Phys. Abh. Akad.Wiss. Berlin, 1830:63. 1832.

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290  GCCONSTR TCT NO OF STATIONS    7

( 3541    CH        1FEBER1   0.00578 )   (46748    EV        13OC1937   0.02135 )   ( 1566    CS14      5OC1967    0.00183 )
( 1572    GS20      6OC1967   0.00090 )   ( 1575    GS28      6OC1967    0.00129 )   ( 1426    PS 2      29MY1967   0.02100 )
( 1407    SM 2      14MY1967  0.00597 )   (
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Gomphonema constrictum var. *capitatum* (Ehr.) V. H.

Gomphonema capitatum Ehrenberg, Infusionsthierchen, p. 217, pl. 18, fig. 2. 1838.
Gomphonema constrictum var. *capitatum* (Ehr.) Van Heurck, Syn. Diat. Belgique, p. 123. 1885.

291 GCCCASVC TCT AC CF STATICNS 1

1350	BH 2		19AP1967	C.CC22C										

Gomphonema gracile Ehr.

Gomphonema gracile Ehrenberg, Infusionsthierchen, p. 217, pl. 18, fig. 3. 1838.

292 GOGRACIL TCT AC CF STATICNS 12

146758	EV		5JN1937	C.C1070	146757	EV		25JL1937	C.CC481	146763	EV		23AU1937	C.C4C58
146752	EV		15SE1937	C.C6530	1341	A 3		19AP1967	C.00108	1397	GS21		13MY1967	C.CCC65
1554	GS 1		3CC1967	C.CC45C	1556	GS 3		3CC1967	C.00521	1565	GS13		5CC1967	C.C1521
1550	MR 1		5CC1967	C.01239	1350	BP 2		19AP1967	C.00441	1404	PC 2		10MY1967	C.C127C

Gomphonema gracile var. *cymbelloides* Grun.

Gomphonema gracile var. *cymbelloides* Grunow *ex* Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):182. 1894.

293 GCGRACVA TCT AC CF STATICNS 1

1559	GS 2		4CC1967	C.00350	

Gomphonema grovei M. Schm.

Gomphonema grovei M. Schmidt *in*: A. Schmidt, Atlas. Diat., pl. 214, figs. 13-18. 1899.

294 GCGROVEI TCT AC CF STATICNS 6

1571	GS19		6CC1967	C.CC117	1572	GS2C		6CC1967	C.CCC9C	1550	PR 1		5CC1967	C.C4556
1427	LU 2		29MY1967	C.03632	1350	BP 2		19AP1967	C.CC220	1404	PC 2		10MY1967	C.C1270

Gomphonema intricatum Kütz.

Gomphonema intricatum Kützing, Bacill., p. 87, pl. 9, fig. 4. 1844.

295 GCINTRIC TCT AC CF STATICNS 56

3561	CH		1FE1981	0.01956	146521	CH		23NO1945	C.CC129	146917	CH		12JA1946	C.CCC28
146923	CH		22NO1946	0.00219	146520	CH		20DE1946	C.00092	146909	CH		MR1947	C.CC455
146916	CH		4MY1947	C.00088	146926	CH		MY1947	C.00133	146907	CH		JL1947	C.CCC49
146922	CH		21AU1947	C.00145	146758	EV		5JN1937	C.00357	146764	EV		17JL1937	C.4C8C6
146757	EV		25JL1937	0.01444	146767	EV		1AU1937	C.0C743	146763	EV		23AU1937	C.28409
146752	EV		15SE1937	0.17919	146760	EV		22SE1937	0.00492	146750	EV		24SE1937	C.CC471
146768	EV		13CC1937	0.17079	146767	EV		27CC1937	C.C116C	146768	EV		16MR1938	C.2C049
146762	EV		18MR1938	0.02204	146751	EV		30MR1938	C.01117	146761	EV		27MY1938	C.CC273
1244	F 1		11JN1984	C.CC11C	1258	F 1		8JL1984	C.01416	1259	F 2		8JL1984	C.CC31C
1279	E 1		18SE1984	0.00393	1284	E E		17SE1984	C.01271	1285	F 1		15SE1984	C.C8736
1390	GS14		12MY1967	0.00587	1391	GS15		12MY1967	C.00958	1392	GS16		12MY1967	C.CC616
1397	GS21		13MY1967	C.00065	1563	GS11		5CC1967	C.00234	1566	GS14		5CC1967	C.CC183
1567	GS15		5CC1967	0.00478	1571	GS19		6DC1967	C.00059	1572	GS20		6DC1967	C.0C090
1573	GS21		6CC1967	0.00112	1574	GS22		6DC1967	0.04315	1522	BP 1		18SE1967	C.C0182
1523	MA 1		15SE1967	0.04458	1526	MC 1		20SE1967	0.00569	1530	PR 1		24SE1967	C.C1000
1551	ES 1		5CC1967	C.00799	1552	SM 1		6CC1967	C.02641	1550	PR 1		5CC1967	C.C6195
1553	SG 1		6DC1967	0.02672	1426	MS 2		29MY1967	0.03150	1350	BH 2		19AP1967	C.01762
1402	TR 2		6MY1967	0.01082	1253	PR 2		23AP1967	C.C1C55	1403	CA 2		10MY1967	C.C6539
1404	MO 2		10MY1967	0.02541	1407	SM 2		14MY1967	0.05374					

Gomphonema intricatum var. *dichotomum* (Kütz.) Grun.

Gomphonema dichotomum Kützing, Linnaea, 8:569, pl. 15, fig. 48. 1833.
Gomphonema intricatum var. *dichotomum* (Kütz.) Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 24, figs. 30-31. 1880.

296 GCINTDVD TCT AC CF STATICNS 6

146752	EV		15SE1937	0.04354	1388	GS12		12MY1967	C.00683	1574	GS22		6DC1967	C.01726
1522	BH 1		18SE1967	0.00729	1526	MC 1		20SE1967	0.00569	1552	SM 1		6DC1967	C.01981
1550	PR 1		5CC1967	C.07434	1553	SG 1		6DC1967	C.01469	1404	PC 2		10MY1967	C.C127C

Gomphonema intricatum var. *pumila* Grun.

Gomphonema intricatum var. *pumila* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 24, figs. 35-36. 1880.

297 GCEINTRVP TCT NC OF STATICNS 47

(3540	CH		11MY1879	0.03727)	146506	CH		MY1947	C.00066)	146758	EV		5JN1937	C.01787)
146770	EV		9JL1937	0.00596)	146764	EV		17JL1937	0.01612)	146757	EV		25JL1937	C.00963)
146747	EV		1AU1937	0.01238)	146763	EV		23AU1937	C.28409)	146769	EV		7SL1937	C.02171)
146752	EV		15SE1937	0.02177)	146760	EV		22SE1937	0.00492)	146748	EV		13CC1937	C.02135)
146767	EV		27DC1937	0.00774)	146768	EV		16MR1938	C.01470)	(1240	D	6	10JN1964	C.CC153)
(1243	E	6	13JN1964	0.00626)	(1268	E	2	15AU1964	0.00274)	(1270	F	1	10AL1964	C.CC817)
(1285	F	1	15SE1964	0.01185)	(1297	D	6	14CC1964	C.00190)	(1302	E	5	13DC1964	C.CC405)
(1324	F	2	6NO1964	0.00466)	(1341	A	3	19AP1967	C.C0108)	(1538	E	5	23SE1967	C.CC552)
(1386	GS10		12MY1967	0.0C287)	(1387	GS11		12MY1967	0.00792)	(1389	GS13		12MY1967	C.CC258)
(1554	GS	1	3CC1967	0.00356)	(1555	GS	2	30C1967	C.00353)	(1565	GS13		5DC1967	C.02535)
(1571	GS19		6CC1967	C.00059)	(1574	GS22		8DC1967	C.02301)	(1544	PU	1	20C1967	C.CC238)
(1526	MD	1	2CSE1967	0.01138)	(1528	SB	1	20SE1967	0.01444)	(1530	FR	1	24SE1967	C.C2000)
(1552	SM	1	6DC1967	0.00660)	(1550	MR	1	5DC1967	C.11151)	(1553	SG	1	6DC1967	C.02203)
(1428	MU	2	29MY1967	0.00603)	(1417	MD	2	22MY1967	0.01122)	(1350	BM	2	19AP1967	C.01101)
(1399	PN	2	5MY1967	0.00680)	(1402	TR	2	6MY1967	0.00541)	(1403	CA	2	10MY1967	C.01308)
(1405	ES	2	12MY1967	0.03225)	(1407	SM	2	14MY1967	0.00597)	(				

Gomphonema lanceolatum Ehr.

Gomphonema lanceolatum Ehrenberg, Abh. Akad. Wiss. Berlin, 1843:32, pl. 2(1), fig. 37. 1845.

298 GCLANCEG TCT NC CF STATICNS 13

146764	EV		17JL1537	C.0C806)	146763	EV		23AU1537	C.04058)	146748	EV		13CC1937	C.02135)
146767	EV		27DC1937	0.00387)	146768	EV		16MR1938	0.01470)	(1388	GS12		12MY1967	C.CC603)
(1561	GS	9	4DC1967	0.01761)	(1575	GS28		8CC1967	C.00129)	(1550	MR	1	5DC1967	C.C3717)
(1417	MD	2	22MY1967	0.00374)	(1418	SM	2	22MY1967	0.01555)	(1350	BM	2	19AP1967	C.01322)
(1402	TR	2	6MY1967	0.00541)	(									

Gomphonema lanceolatum var. *insignis* (Greg.) Cleve

Gomphonema insigne Gregory, Micr. J., 4:12, pl. 1, fig. 39. 1856.
Gomphonema lanceolatum var. *insignis* (Greg.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Foljd, 26(2):183. 1894.

299 GCLANCVI TCT NC CF STATICNS 1

146768	EV	16MR1938	0.04410)	(

Gomphonema longiceps Ehr.

Gomphonema longiceps Ehrenberg, Mikrog., pl. 4(3), fig. 27. 1854.

300 GCLONGIC TCT NC CF STATICNS 1

146758	EV	5JN1937	0.0C357)	(

Gomphonema manubrium Fricke

Gomphonema manubrium Fricke *in*: A. Schmidt, Atlas Diat., pl. 248, fig. 12. 1904.

Coll: 1549a.

Gomphonema olivaceoides Hust.

Gomphonema olivaceoides Hustedt, Arch. Hydrobiol., 43(3/4):397, pl. 37, figs. 9-12. 1950.

302 GCCLECDE TCT NC CF STATICNS 17

146758	EV		5JN1937	0.03205)	146771	EV		11JN1937	C.CC238)	146743	EV		20JN1937	C.01285)
146764	EV		17JL1937	0.00806)	146757	EV		25JL1937	0.00963)	146763	EV		23AU1937	C.02029)
146752	EV		15SE1937	0.04354)	146748	EV		13DC1937	C.C4405)	146749	EV		12MR1938	C.01214)
146762	EV		18MR1938	0.06617)	146756	EV		27AP1938	0.00168)	(1258	F	1	6JL1964	C.CC472)
(1384	GS	8	10MY1967	0.00185)	(1530	FR	1	24SE1967	C.01000)	(1549	PQ	1	4DC1967	C.C1370)
(1552	SM	1	6DC1967	0.00660)	(1550	MR	1	5DC1967	0.03717)	(				

Gomphonema olivaceum (Lyngb.) Kütz.

Echinella olivacea Lyngbye, Tent. Hydrophyt. Danicae, p. 209, pl. 70, fig. c. 1819.
Gomphonema olivaceum (Lyngb.) Kützing, Bacill., p. 85, pl. 7, figs. 13, 15. 1844.

303 GOOLIVAC TCT AC CF STATICNS 82

146921	CH	23DC1945	0.00194	146524	CH	10MY1948	0.00282	146920	CH	20DE1948	C.CCC62
146905	CH	JA1947	0.00123	146516	CH	4MY1947	0.00170	146919	CH	5JN1947	C.00303
146922	CH	21AU1947	0.00048	146758	EV	5JN1937	C.39940	146743	EV	20JN1937	C.CC856
146770	EV	9JL1937	0.00596	146764	EV	17JL1937	0.00806	146757	EV	25JL1937	0.01926
146747	EV	1AU1937	0.01238	146783	EV	23AU1937	0.12175	146765	EV	30AU1937	C.CC558
146752	EV	15SE1937	0.02177	146760	EV	22SE1937	0.00492	146748	EV	13DC1937	C.02135
146767	EV	27CC1937	0.00387	146768	EV	16MR1938	C.C1470	146762	EV	18PR1938	C.02206
146751	EV	30MR1938	0.02233	1227	C* 2	13MY1964	C.00110	1236	C* 1	8JN1964	C.CC175
1240	D 6	10JN1964	0.00307	1252	C* 1	16JL1964	C.00279	1273	C* 2	10SE1964	C.00538
1279	E 1	16SE1964	0.00393	1282	E 4	16SE1964	C.01108	1285	F 1	15SE1964	C.00582
1341	A 3	19AP1967	0.00868	1342	A 4	19AP1967	0.00180	1346	C 7	21AP1967	C.00401
1368	A 3	4MY1967	0.00314	1369	A 4	4MY1967	0.00373	1372	C 5	9MY1967	C.00355
1375	E 3	7MY1967	0.00241	1416	E 5	28MY1967	0.00219	1432	A 4	13JN1967	C.00255
1451	C 7	16JL1967	0.00197	1452	E 2	14JL1967	0.00426	1453	E 3	15JL1967	C.CC253
1532	A 3	18SE1967	0.00329	1538	E 5	23SE1967	0.00552	1381	GS 5	10MY1967	C.00239
1387	GS11	12MY1967	0.00398	1389	GS13	12MY1967	C.00258	1396	GS20	13MY1967	C.CC222
1397	GS21	13MY1967	C.00065	1559	GS 7	4CC1967	C.00350	1563	CS11	5DC1967	C.CC234
1567	GS15	5DC1967	0.00318	1569	GS17	5DC1967	C.00297	1571	CS19	6CC1967	C.CC059
1573	GS21	6CC1967	C.00224	1574	GS22	6CC1967	C.00863	1575	CS28	6DC1967	C.CC129
1524	PI 1	20SE1967	0.02189	1546	LU 1	20DC1967	0.02501	1521	SP 1	18SE1967	C.CC577
1522	BH 1	18SE1967	0.01641	1545	WL 1	20DC1967	C.02703	1549	MQ 1	4DC1967	C.C1370
1551	ES 1	5DC1967	C.00795	1550	MR 1	5DC1967	C.24780	1553	SG 1	6CC1967	C.CC734
1428	MQ 2	29MY1967	C.00904	1426	MS 2	29MY1967	C.04199	1351	PI 2	21AP1967	C.00621
1427	LU 2	29MY1967	C.04843	1417	MQ 2	22MY1967	C.04112	1350	BH 2	19AP1967	C.45338
1401	MQ 2	8MY1967	0.05292	1402	TR 2	8MY1967	C.01083	1400	SB 2	6MY1967	C.CC552
1354	GH 2	25AP1967	0.01553	1429	WL 2	29MY1967	C.C2123	1403	CA 2	10MY1967	C.C5231
1407	SM 2	14MY1967	0.00597	1349	CI 2	17AP1967	C.00359	1406	GB 2	13MY1967	C.C2696
1423	NA 2	25MY1967	0.01205								

Gomphonema olivaceum var. *calcarea* Cleve

Gomphonema olivaceum var. *calcarea* Cleve, Ofv. K. Svenska Vet.-Akad. Forhandl., 24:231, pl. 4, fig. 7. 1868.

304 GCCLIVVC TCT NO OF STATICNS 6

146758	EV	5JN1937	0.01426	146757	EV	25JL1937	C.01444	146747	EV	1AU1937	C.CC248
146763	EV	23AU1937	C.02029	1285	F 1	15SE1964	C.00582	1342	A 4	19AP1967	C.00180
1526	MQ 1	20SE1967	0.01138	1527	TR 1	20SE1967	0.00829	1525	BH 1	20SE1967	C.04797

Gomphonema parvulum (Kütz.) Kütz.

Sphenella ? parvula Kützing, Bacill., p. 83, pl. 30, fig. 63. 1844.
Gomphonema parvulum (Kütz.) Kützing, Sp. Alg., p. 65. 1849.

305 GOPARVVM TCT AC CF STATICNS 18

146909	CH	PR1947	0.00455	146758	EV	5JN1937	C.00357	146768	EV	16PR1938	C.C147C
1258	F 1	6JL1964	0.00236	1265	C* 2	10AU1964	C.00224	1279	E 1	16SE1964	C.CC393
1541	E 2	11DC1967	C.00532	1387	GS11	12MY1967	C.00792	1571	GS19	6DC1967	C.CC117
1573	GS21	6DC1967	0.00112	1574	GS22	6DC1967	C.00288	1524	PI 1	20SE1967	C.04378
1520	MQ 1	18SE1967	0.00471	1522	BH 1	18SE1967	0.00182	1523	PA 1	15SE1967	C.C3690
1350	BH 2	19AP1967	C.05506	1401	MQ 2	8MY1967	C.00588	1406	GB 2	13MY1967	C.CC27C

Gomphonema parvulum var. *micropus* (Kütz.) Cleve

Gomphonema micropus Kützing, Bacill., p. 84, pl. 3, fig. 12. 1844.
Gomphonema parvulum var. *micropus* (Kütz.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):180. 1894.

306 GCSCLAVM TCT NO OF STATICNS 1

1553	SG 1	6DC1967	0.CC734	

Gomphonema sphaerophorum Ehr.

Gomphoneam sphaerophorum Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:78. 1846.

307 GCSPHAER TCT NO CF STATIONS 1

1350	BH 2	19AP1967	0.00861		

Gomphonema subtile Ehr.

Gomphonema subtile Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:128. 1843.

308 GCSUBTIL TCT AC CF STATICNS 1

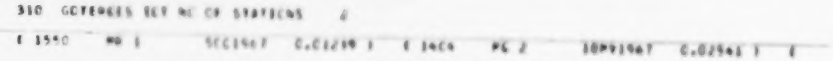
1568	GS16	5DC1967	0.00144		

Gomphonema subtile var. *sagitta* (Schum.) Grun.

Gomphonema sagitta Schumann, Schrift. Phys.-Ökon. Ges. Königsberg, 3:187, pl. 9, figs. 19a-d. 1863.
Gomphonema subtile var. *sagitta* (Schum.) Grun. *in*: Van Heurck, Syn. Diat. Belgique, pl. 23, fig. 27. 1880.

Gomphonema tergestinum (Grun.) Fricke

Gomphonema semiapertum var. *tergestina* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 25, fig. 40. 1880.
Gomphonema tergestinum (Grun.) Fricke *in*: A. Schmidt, Atlas Diat., pl. 234, figs. 39-43. 1902.

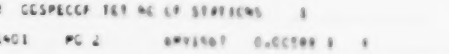


Species *incertae sedis*

Gomphonema sp. #2.

Gomphonema sp. #3.

Gomphonema sp. #6.

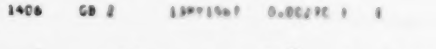


Genus *Gyrosigma* Hass.
Hassall, British Freshw. Algae, p. 435. 1845.

Although most freshwater species of the genus *Gyrosigma* find their primary habitat in epipelic communities, many are successful facultative planktonts. Members of the genus are found in many plankton collections from Lake Michigan, but usually in small numbers.

Gyrosigma acuminatum (Kütz.) Rabh.

Frustulia acuminata Kützing, Linnaea, 8:555, pl. 14, fig. 36. 1833.
Gyrosigma acuminatum (Kütz.) Rabenhorst, Süssw.-Diat., p. 47, pl. 5, fig. 5a. 1853.



Gyrosigma attenuatum (Kütz.) Rabh.

Frustulia attenuatum Kützing, Linnaea, 8:555, pl. 14, fig. 35. 1833.
Gyrosigma attenuatum (Kütz.) Rabenhorst, Süssw.-Diat., p. 47, pl. 5, fig. 2. 1853.

316 GYATTENU TCT AC CF STATICNS 19

(3540	CM	11MY1879	0.00932)	(3541	CM		1FE1881	0.02535)	144967	CM		JL1947	C.CC099)
(1284	E 6	17SE1964	0.00318)	(1285	P 1		19SE1964	0.00982)	(1384	GS 6		10MY1967	C.00185)
(1387	GS11	12MY1967	0.00394)	(1390	GS14		12MY1967	0.00587)	(1394	GS18		13MY1967	C.0C172)
(1967	GS15	9CC1967	0.0C318)	(1972	GS20		6DC1967	C.00090)	(1974	GS22		6DC1967	C.0C288)
(1975	GS28	6DC1967	C.00129)	(1947	MS 1		2DC1967	C.C0798)	(1526	MO 1		20SE1967	C.C2276)
(1527	TR 1	20SE1967	C.C1258)	(1553	SG 1		6CC1967	0.00734)	(1426	MS 2		29MY1967	C.C1C58)
(1350	BH 2	15AP1967	0.01542)	(									

Gyrosigma nodiferum (Grun.) Reim.

Pleurosigma nodiferum Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):59. 1880.
Gyrosigma nodiferum (Grun.) Reimer *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr. 13:320, pl. 24, fig. 2. 1966.

317 GYNOSIPE TCT AC CF STATICNS 22

(3541	CM	1FE1881	0.00978)	144520	CM		20DE1948	C.08031)	144966	CM		MY1947	C.0C066)
140764	RV	17JL1937	0.00806)	144757	RV		25JL1937	.00481)	144767	RV		18JU1937	C.0C743)
(1286	P 3	6JL1964	C.00191)	(1323	P 1		6NO1964	0.00139)	(1346	C 7		21AP1967	C.CC134)
(1534	A 6	19SE1967	0.0C310)	(1380	GS 4		9MY1967	C.00336)	(1388	GS12		12MY1967	C.C5430)
(1389	GS13	12MY1967	0.00258)	(1390	GS14		12MY1967	0.04698)	(1391	GS15		12MY1967	C.C4318)
(1393	GS17	13MY1967	0.01644)	(1394	GS18		13MY1967	0.01892)	(1395	GS19		13MY1967	C.0C235)
(1963	GS11	9CC1967	0.00234)	(1968	GS16		9DC1967	C.00433)	(1552	SP 1		6DC1967	C.01981)
(1553	SG 1	6CC1967	0.0C734)	(									

Gyrosigma sciotense (Sulliv. and Wormley) Cleve

Pleurosigma sciotense Sullivant and Wormley, American J. Sci., Ser. 2, 27:251. 1859.
Gyrosigma sciotense (Sulliv. and Wormley) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):pl. 1, fig. 5. 1895.

318 GYSCIOTE TCT AC CF STATICNS 1

(1405	BS 2	12MY1967	0.0C645)

319 GYSCIOTO TCT AC CF STATICNS 12

(1231	P 3	14MY1964	0.00245)	(1392	GS16		12MY1967	0.00616)	(1394	GS18		13MY1967	C.0C344)
(1395	GS19	13MY1967	0.00117)	(1389	GS14		9DC1967	0.00367)	(1967	GS15		9DC1967	C.03081)
(1969	GS17	9CC1967	0.00324)	(1970	GS18		9DC1967	C.27767)	(1971	GS19		6DC1967	C.CC117)
(1973	GS21	6CC1967	0.00112)	(1974	GS22		6DC1967	C.00208)	(1975	GS28		6DC1967	C.01677)

Gyrosigma spencerii (Quek.) Griff. and Henfr.

Navicula spencerii Quekett, Pract. Treat. Micr., p. 440, pl. 9. 1848.
Gyrosigma spencerii (Quek.) Griffith and Henfrey, Microgr. Dict., 1st. ed., p. 303, pl. 11, fig. 17. 1856.

320 GYSPENCE TCT AC CF STATICNS 5

(3540	CM	11MY1879	0.00466)	(1275	E 1		10SE1964	0.00393)	(1285	P 1		19SE1964	C.C1747)
(1969	GS17	9DC1967	0.0C149)	(1407	SM 2		14MY1967	0.01194)	(				

Gyrosigma spencerii var. *curvula* (Grun.) Reim.

Pleurosigma spencerii var. *curvula* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):60. 1880.
Gyrosigma spencerii var. *curvula* (Grun.) Reimer *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:316, pl. 23, fig. 8. 1966.

321 GYSPERVC TCT AC CF STATICNS 17

144909	CM	MR1967	0.0C455)	144966	CM		MY1947	C.00066)	144967	CM		JL1947	C.CCC49)
140922	GM	21AU1947	0.00048)	(1387	GS11		12MY1967	0.00396)	(1574	GS22		6DC1967	C.0C575)
(1521	SP 1	19SE1967	C.0C577)	(1526	MO 1		20SE1967	0.00569)	(1527	TR 1		20SE1967	C.CC629)
(1553	SG 1	8DC1967	0.00734)	(1426	MS 2		29MY1967	C.01090)	(1427	SM 2		29MY1967	C.01211)
(1401	MO 2	6MY1967	0.01176)	(1402	TR 2		6MY1967	C.01624)	(1407	SP 2		14MY1967	C.00597)
(1349	CI 2	15AP1967	0.00359)	(1422	GA 2		23MY1967	0.00911)	(				

Gyrosigma temperei Cleve

Gyrosigma temperei Cleve, Diatomiste, 2(15):55, pl. 3, fig. 3. 1893.

322 GYROSIGMA ICT NO OF STATIONS 2

[illegible]

Gyrosigma wormleyi (Sulliv.) Boyer

Pleurosigma wormleyi Sullivant *in*: Sullivant and Wormley, Amer. J. Sci., Ser. 2, 27:251. 1859.
Gyrosigma wormleyi (Sulliv.) Boyer, Contr. Biol. Micr. Sect. Acad. Nat. Sci. Philadelphia, 1:7, pl. 2, fig. 10. 1922.

323 GYROSIGMA ICT NO OF STATIONS 1

[illegible]

Genus *Hannaea* Patr.
Patrick *in*: Patrick and Reimer
Acad. Nat. Sci. Philadelphia Monogr., 13:131. 1966.

Members of the genus *Hannaea* are most abundant in periphyton communities, especially in mountain streams and cold, oligotrophic lakes. Like several members of the closely related genus *Fragilaria* which have similar habit, they are apparently successful in the plankton under certain conditions. In Lake Michigan occasional specimens are taken in plankton collections from nearshore areas but the genus is rarely noted in offshore collections.

Hannaea arcus (Ehr.) Patr.

Navicula arcus Ehrenberg, Infusionsthierchen, p. 182, pl. 21, fig. 10. 1838.
Hannaea arcus (Ehr.) Patrick *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:132, pl. 4, fig. 20. 1966.

329 HANNAEA ICT NO OF STATIONS 1

[illegible]

Hannaea arcus var. *amphioxys* (Rabh.) Patr.

Ceratoneis amphioxys Rabenhorst, Süssw.-Diat., p. 37, pl. 9, fig. 4. 1853.
Hannaea arcus var. *amphioxys* (Rabh.) Patrick *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:133, pl. 4, fig. 21. 1966.

325 HANNAEA ICT NO OF STATIONS 2

[illegible]

Genus *Hantzschia* Grun.
Grunow *in*: Cleve and Grunow
K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):103. 1880.

Freshwater members of the genus *Hantzschia* are most abundant in epipelic communities in aquatic habitats and in the soil flora. Only occasional isolated specimens have been noted in plankton collections from Lake Michigan.

Hantzschia amphioxys (Ehr.) Grun.

Eunotia amphioxys Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:413, pl. 1(1), fig. 26. 1843.
Hantzschia amphioxys (Ehr.) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):103. 1880.

Hantzschia amphioxys var. *capitata* O. Müll.

Hantzschia amphioxys var. *capitata* O. Müll., Bot. Jahrb., 43(4):34, pl. 2, fig. 28. 1909.

Genus *Mastogloia* Thw.
Thwaites *ex* Wm. Smith, Syn. British Diat., Vol. 2, p. 63. 1856.

Freshwater members of the genus *Mastogloia* find their primary habitat in periphyton and epipelic communities. Only occasional specimens are noted in plankton collections from Lake Michigan.

Mastogloia grevillei Wm. Smith

Mastogloia grevillei Wm. Smith, Syn. British Diat., Vol. 2, p. 65, Supp. pl. 62, fig. 389. 1856.

Mastogloia smithii Thw.

Mastogloia smithii Thwaites *ex* Wm. Smith, Syn. British Diat., Vol. 2, p. 65, pl. 54, fig. 341. 1856.

Mastogloia smithii var. *amphicephala* Grun.

Mastogloia smithii var. *amphicephala* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 4, fig. 27. 1880.

Coll: 1100.

Mastogloia smithii var. *lacustris* Grun.

Mastogloia smithii var. *lacustris* Grunow *in*: Schneider, Naturw. Beitr. Kenntn. Kaukasusländer, p. 111. 1878.

Genus *Melosira* Agardh
Agardh, Syst. Alg., p. 8. 1824.

Melosira distans (Ehr.) Kütz.

Gaillonella distans Ehrenberg, Ber. Akad. Wiss. Berlin, 1836:170. 1836.
Melosira distans (Ehr.) Kützing, Bacill., p. 170, pl. 2, fig. 12. 1844.

Cells cylindrical, united by the valve faces into short colonies. Individual valves of specimens from Lake Michigan 4-12μ in diameter, 4-6μ in height (valve mantle). Frustules are heavily silicified. Ornamentation of

the valve surface consists of irregularly arranged poroids. Ornamentation of the valve mantle consists of poroids arranged in rows usually parallel to the pervalvar axis. Rows of poroids usually about 13-15 in 10μ, poroids within the rows about 15-18 in 10μ. In the smaller specimens the arrangement of these structures tends to become irregular. The margin of the valve is furnished with a corona of small spines. Pseudosulcus apparent, usually deeply incised. Sulcus deeply incised, forming a sharp angle. Because of the deep incision of the sulcus and pseudosulcus, the margins of the valve mantle tend to be convex and the neck of each valve is more or less bowl-shaped.

This species is uncommon in our collections. Occasional populations are found in the modern plankton and isolated valves occur in many collections. We suspect that some of these are derived from Pleistocene deposits because of their corroded condition and random occurrence.

332 PEDISTAN TCT NO OF STATIONS 12

(3540	CH	11MY1879	0.03261)	(46910	CH	0C1945	C.00546)	(46914	CH	19AP1946	C.CC427)
(46923	CH	22NO1946	0.00656)	(46920	CH	20DE1946	C.00092)	(46905	CH	JA1947	C.0C368)
(46916	CH	4MY1947	0.0C238)	(4665C7	CH	JL1547	C.00197)	(1536	E 2	24SE1567	C.0C 72)
(1537	E 3	24SE1967	0.00431)	(1538	E 5	23SE1967	C.00552)	(1554	CS 1	30C1967	C.0C712)

Melosira distans var. *alpigena* Grun.

Melosira distans var. *alpigena* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 86, figs. 28-29. 1882.

Distinguished from the nominate variety by its smaller size range, lesser degree of silicification and finer ornamentation. Specimens from Lake Michigan 3-6μ in diameter, 3-4μ high. Striae on the valve mantle about 16 in 10μ, poroids within the rows about 22 in 10μ. The striae are usually oblique to the pervalvar axis and tend to spiral around the frustule rather than being parallel to the pervalvar axis as in the nominate variety.

This entity is very rare in our collections. All specimens observed appear to be of modern derivation.

333 PEDISTVA TCT NO OF STATIONS 15

(3541	CH	1FE1881	0.C1556)	(46744	EV	6CC1937	C.00488)	(1341	A 3	19AP1967	C.CC651)
(1342	A 4	19AP1967	0.00361)	(1431	A 3	12JN1967	0.00772)	(1436	E 2	15JN1967	C.01809)
(1437	E 3	15JN1967	C.CC265)	(1446	A 3	11JL1967	C.00978)	(1451	C 7	16JL1967	C.CC394)
(1452	E 2	14JL1967	0.00852)	(1453	E 3	15JL1967	C.01011)	(1532	A 3	18SE1967	C.CC657)
(1538	E 5	23SE1967	C.01105)	(1543	E 5	10CC1967	C.00718)	(1395	CS15	13MY1967	C.CC470)

Melosira granulata (Ehr.) Ralfs

Gaillonella granulata Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:415. 1843.
Melosira granulata (Ehr.) Ralfs *in*: Pritchard, Hist. Infus., p. 820. 1861.

Cells cylindrical, joined by the valve faces into long, closely appressed colonies. Individual valves of specimens from Lake Michigan 5-20μ in diameter, 5-20μ high. Pseudosulcus poorly developed, not apparent, sulcus only slightly incised consisting of a sharply angled furrow. Neck elongate, of the same diameter as the valve. The margin of the valve is often furnished with very coarse spines of irregular length. The longer of these spines often overlap one valve of the next cell in the colony. The degree of silicification and the ornamentation of the frustule is extremely variable. The valve mantle is more heavily silicified than the valve surface. Ornamentation of the valve surface poorly developed consisting of a few irregularly arranged poroids, often without visible structure. The ornamentation of the valve mantle is pleomorphic. In all cases the

poroids are arranged in rows oblique to the pervalvar axis, thus spiraling around the long dimension of the colony. The following types of ornamentation are found:

Status α; Ornamentation of the valve mantle consisting of rows of coarse, more or less rectangular areolae. Areolae rows about 8-9 in 10μ with 8-10 areolae in 10μ within the rows. Frustules are heavily silicified.

Status β: Both finely areolate and coarsely areolate frustules found in the same colony.

Status ɾ Ornamentation of the valve mantle consisting of fine, more or less circular puncta. Punctae rows 10-15 in 10μ with 10-15 puncta in 10μ within the rows.

This species is often abundant in eutrophied portions of Lake Michigan.

334 MEGRANUL TCT NO OF STATIONS 262

(60973	CH	1876	0.16533)	(3540	CH	11MY1875	0.17705)	(3541	CH	1FE1881	0.45975)
(3507	CH	19FE1881	0.12452)	(46510	CH	OC1945	63.90089)	(46921	CH	23NC1945	8.74351)
(46908	CH	DE1945	1.75226)	(46517	CH	12JA1946	1.35155)	(46915	CH	20FE1946	3.65886)
(46914	CH	19AP1946	3.36561)	(46524	CH	10MY1946	12.38078)	(46923	CH	22NO1946	14.20641)
(46920	CH	20DE1946	2.99412)	(46505	CH	JA1947	5.29722)	(46909	CH	MR1947	2.65979)
(46912	CH	AP1947	5.61113)	(46516	CH	4MY1947	4.41C77)	(46906	CH	MY1947	3.71004)
(46915	CH	5JN1947	0.54172)	(46507	CH	JL1947	4.00655)	(46913	CH	6AU1947	4.C7907)
(46922	CH	21AU1947	4.31575)	(46758	EV	5JN1937	0.02496)	(46771	EV	11JN1937	C.0C713)
(46743	EV	20JN1937	0.04710)	(46745	EV	3JL1937	2.34065)	(46770	EV	9JL1937	C.25644)
(46764	EV	17JL1937	3.15874)	(46757	EV	25JL1937	0.89548)	(46747	EV	1AU1937	C.64856)
(46763	EV	23AU1937	0.42614)	(46765	EV	30AU1937	7.96430)	(46769	EV	7SE1937	8.C7603)
(46752	EV	15SE1937	5.70309)	(46760	EV	22SE1937	8.82367)	(46750	EV	24SE1937	8.84197)
(46744	EV	6OC1937	6.55462)	(46748	EV	13OC1937	0.46968)	(46767	EV	27CC1937	C.3C947)
(46745	EV	12MR1938	0.03641)	(46762	EV	18MR1938	2.11734)	(46772	EV	18AP1938	C.C4258)
(46756	EV	27AP1938	0.03358)	(46759	EV	19MY1938	0.00338)	(46761	EV	27MY1938	0.02453)
(46766	EV	14DE1938	2.94677)	(1233	B 3	5JN2964	3.00064)	(1234	B 3	18JN1964	1.18C84)
(1235	C 7	16JN1964	0.01130)	(1236	C* 1	8JN1964	2.20542)	(1237	C* 2	8JN1964	1.53390)
(1238	D 3	11JN1964	0.00800)	(1240	D 6	10JN1964	0.25770)	(1241	E 2	13JN1964	C.55298)
(1242	E 3	13JN1964	0.00300)	(1243	E 6	13JN1964	C.10023)	(1244	F 1	11JN1964	C.05811)
(1245	F 2	11JN1964	0.02766)	(1246	F 3	11JN1964	C.01195)	(1247	B 3	14JL1964	C.26892)
(1248	B 3	24JL1964	0.27587)	(1440	B 6	11JL1964	0.02948)	(1441	B 6	24JL1964	0.00220)
(1249	C 3	8JL1964	C.29332)	(1250	C 6	10JL1964	0.00822)	(1251	C 7	16JL1964	C.14485)
(1252	C* 1	16JL1964	3.90516)	(1253	C* 2	16JL1964	0.28985)	(1254	D 2	15JL1964	C.26815)
(1255	D 5	15JL1964	0.00257)	(1256	E 2	14JL1964	C.09709)	(1257	E 3	14JL1964	C.CC718)
(1258	F 1	6JL1964	0.04248)	(1259	F 2	6JL1964	0.09606)	(1260	F 3	6JL1964	C.01719)
(1261	B 3	2AL1964	0.08046)	(1262	B 3	17AU1964	C.10500)	(1442	B 6	2AL1964	C.C1365)
(1264	C* 1	10AU1964	5.94686)	(1265	C* 2	10AU1964	0.04024)	(1266	D 3	18AU1964	C.01403)
(1267	D 6	18AU1964	0.01081)	(1268	E 2	15AU1964	0.11489)	(1269	E 3	15AU1964	C.C2837)
(1270	F 1	1CAU1964	0.01C89)	(1444	B 6	19SE1964	C.00606)	(1271	C 7	22SE1964	C.02611)
(1272	C* 1	10SE1964	0.18881)	(1273	C* 2	10SE1964	0.02151)	(1274	D 1	17SE1964	1C.51CC2)
(1275	D 2	17SE1964	4.51584)	(1276	D 3	18SE1964	1.45284)	(1277	D 4	18SE1964	C.01239)
(1278	D 6	18SE1964	0.53807)	(1279	E 1	16SE1964	3.84812)	(1280	E 2	16SE1964	C.36C81)
(1281	E 3	16SE1964	0.00785)	(1282	E 4	16SE1964	C.02216)	(1283	E 5	16SE1964	C.C2452)
(1284	E 6	17SE1964	2.11292)	(1285	F 1	15SE1964	C.22713)	(1286	F 2	15SE1964	C.C4378)
(1287	F 3	15SE1964	0.08507)	(1288	B 3	15OC1964	7.00945)	(1445	B 6	14OC1964	C.66210)
(1290	C* 1	16OC1964	0.30699)	(1291	C* 2	16OC1964	C.68490)	(1292	D 1	15OC1964	C.57394)
(1293	D 2	15OC1964	0.04245)	(1294	D 3	15CC1964	0.02967)	(1295	D 4	15OC1964	0.C0595)
(1296	D 5	14CC1964	0.0C293)	(1297	D 6	14CC1964	0.29131)	(1298	E 1	12OC1964	C.47124)
(1299	E 2	12OC1964	0.73516)	(1300	E 3	13OC1964	0.22552)	(1301	E 4	13OC1964	C.01766)
(1302	E 5	13CC1964	0.29962)	(13C3	E 6	13OC1964	C.29106)	(13C4	F 1	11CC1964	C.C8397)
(1305	F 2	11OC1964	0.05520)	(1306	F 3	11CC1964	0.04158)	(1307	B 6	NO1964	C.5C512)
(1308	C 7	6NO1964	0.01825)	(13C9	C* 1	10NO1964	C.C8C40)	(1310	C* 2	10NC1964	C.C3401)
(1311	D 1	8NO1964	C.02066)	(1312	D 2	8NO1964	0.29179)	(1313	D 3	9NC1964	C.C2896)
(1314	D 4	9NO1964	0.01435)	(1315	D 5	9NO1964	C.C1820)	(1316	D 6	9NC1964	C.C8422)
(1317	E 1	6NO1964	0.15892)	(1318	E 2	7NO1964	0.22639)	(1319	E 3	7NC1964	C.1C997)
(1320	E 4	7NO1964	0.07859)	(1321	E 5	7NC1964	C.26496)	(1322	E 6	7NC1964	C.40657)
(1323	F 1	6NO1964	C.08920)	(1324	F 2	6NO1964	0.32609)	(1325	F 3	6NC1964	C.32495)
(1336	C 3	27JA1967	0.67395)	(1337	C 3	2MR1967	0.33510)	(1339	C 5	28MR1967	C.02182)
(1340	C 7	28MR1967	0.00291)	(1341	A 3	19AP1967	0.32978)	(1342	A 4	19AP1967	C.31581)
(1343	A 5	19AP1967	0.0C139)	(1344	C 3	25AP1967	0.00331)	(1346	C 7	21AP1967	C.00935)
(1368	A 3	4MY1967	0.00628)	(1369	A 4	4MY1967	0.C0373)	(1371	C 3	4MY1967	C.C1385)
(1408	A 3	23MY1967	0.01789)	(1411	C 3	31MY1967	0.02462)	(1412	C 5	31MY1967	C.C7155)
(1414	E 2	28MY1967	0.00336)	(1415	E 3	28MY1967	C.00450)	(1416	E 5	28MY1967	C.0C875)
(1431	A 3	12JN1967	0.00515)	(1432	A 4	13JN1967	0.01533)	(1433	C 3	17JN1967	C.18086)
(1434	C 5	17JN1967	0.01794)	(1435	C 7	13JN1967	0.01263)	(1436	E 2	15JN1967	C.02895)
(1446	A 3	11JL1967	13.18429)	(1447	A 4	11JL1967	C.C9590)	(1448	A 6	10JL1967	C.01061)
(1451	C 7	16JL1967	0.03543)	(1452	E 2	14JL1967	0.29804)	(1454	E 5	15JL1967	C.3C806)
(1504	A 3	28AU1967	0.34564)	(1511	E 2	1SE1967	2.14876)	(1532	A 3	10SE1967	2.75944)
(1533	A 4	14SE1967	0.40850)	(1534	A 6	19SE1967	2.38886)	(1535	C 7	20SE1967	C.C7C81)
(1536	E 2	24SE1967	2.48132)	(1537	E 3	24SE1967	0.02588)	(1538	E 5	23SE1967	C.23201)
(1539	C 3	4CC1967	2.28942)	(1540	C 5	4CC1967	C.09927)	(1541	E 2	11OC1967	4.84274)
(1542	E 3	11OC1967	0.07120)	(1543	E 5	10CC1967	0.25140)	(1380	GS 4	9MY1967	C.CC336)
(1387	GS11	12MY1967	0.01188)	(1388	GS12	12MY1967	4.22323)	(1389	GS13	12MY1967	2.52688)
(1390	GS14	12MY1967	2.05520)	(1391	GS15	12MY1967	1.22588)	(1392	GS16	12MY1967	8.41372)
(1393	GS17	13MY1967	1.02454)	(1394	GS18	13MY1967	1.32453)	(1395	GS19	13MY1967	2.C5510)
(1396	GS20	13MY1967	35.89212)	(1397	GS21	13MY1967	3.80004)	(1398	GS22	14MY1967	C.02429)
(1554	GS 1	3CC1967	1.08162)	(1555	GS 2	3OC1967	C.20833)	(1556	ES 3	3CC1967	C.C2607)
(1557	GS 4	3OC1967	0.16816)	(1558	GS 5	4CC1967	C.17045)	(1559	GS 7	4OC1967	C.26929)
(1560	GS 8	4CC1967	C.08029)	(1561	GS 9	4OC1967	0.09978)	(1562	GS10	5OC1967	C.09622)
(1563	GS11	5CC1967	3.6C095)	(1564	GS12	5CC1967	7.14333)	(1565	GS13	5OC1967	2.3C707)
(1566	GS14	5CC1967	21.18877)	(1567	GS15	5OC1967	28.11824)	(1568	GS16	5OC1967	42.92867)

(1569	GS17	5CC1967	13.63103)	(1570	GS18	5CC1967	17.39922)	(1571	GS19	6DC1967	41.10005)
(1572	GS20	6DC1967	31.67134)	(1573	GS21	6DC1967	53.22925)	(1574	GS22	6DC1967	1.00673)
(1575	GS28	6DC1967	39.01532)	(1544	MU 1	2DC1967	82.57916)	(1547	PS 1	2CC1967	6C.42314)
(1545	LU 1	2DC1967	78.18736)	(1520	MO 1	18SE1967	35.07944)	(1521	SM 1	18SE1967	6C.92775)
(1522	BM 1	18SE1967	61.03462)	(1523	RA 1	19SE1967	0.14760)	(1526	PO 1	20SE1967	1C.65C28)
(1527	TR 1	20SE1967	2.71698)	(1529	KN 1	2CSE1967	1.00731)	(1530	FR 1	24SE1967	47.84477)
(1531	GM 1	25SE1967	38.14032)	(1545	WL 1	2CC1967	2C.00134)	(1548	CA 1	3CC1967	7.53C85)
(1549	MQ 1	4DC1967	21.C4974)	(1551	ES 1	5CC1967	8.56298)	(1552	SM 1	6DC1967	18.05809)
(1550	PR 1	5CC1967	2.57713)	(1553	SG 1	6CC1967	21.9C41C)	(1428	PU 2	29MY1967	71.72460)
(1426	MS 2	29MY1967	1.85827)	(1351	MI 2	21AP1967	0.01862)	(1427	LU 2	29MY1967	1C.07264)
(1417	MO 2	22MY1967	4.90504)	(1418	SM 2	22MY1967	1.24417)	(1350	BM 2	19AP1967	37.07407)
(1401	MO 2	6MY1967	0.02352)	(1402	TR 2	6MY1967	0.01C83)	(1353	FR 2	23AP1967	C.18987)
(1354	GM 2	25AP1967	3.42453)	(1429	WL 2	29MY1967	28.70792)	(1403	CA 2	10MY1967	C.32693)
(1404	PO 2	10MY1967	27.64227)	(1405	ES 2	12MY1967	1.85758)	(1407	SM 2	14MY1967	3.72604)
(1349	CI 2	19AP1967	0.02155)	(1406	GR 2	13MY1967	9C.06065)	(1420	IM 2	23MY1967	C.27190)
(1421	CH 2	23MY1967	0.19084)	(1422	GA 2	23MY1967	C.03065)	(1423	BA 2	25MY1967	C.0C856)
(1430	MC 2	12JN1967	0.04935)	(							

Melosira granulata fo. *spiralis* Grun.

Melosira (granulata?) var. *spiralis* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 87, figs. 20-22. 1882.

Cells curved in the pervalvar, forming lax spiral colonies. Other morphologic features, including pleomorphic ornamentation, essentially similar to the nominate variety.

Our collections of this entity mostly come from highly eutrophied environments.

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(46744	EV	6DC1937	0.00935)	(1454	E 5	15JL1967	C.28006)	(1511	E 2	15SE1967	C.05218)
(1512	E 3	15SE1967	0.00785)	(1536	E 2	24SE1967	C.07635)	(1541	E 2	11OC1967	C.01064)
(1542	E 3	11OC1967	C.01017)	(1356	GS2C	13MY1967	C.00592)	(1555	GS 2	9DC1967	C.C1C59)
(1558	GS 5	4DC1967	0.00793)	(1573	GS21	6DC1967	C.02240)	(1544	PU 1	2CC1967	7.05316)
(1520	MO 1	18SE1967	3.77198)	(1521	SM 1	18SE1967	C.14424)	(1522	BM 1	18SE1967	C.87526)
(1531	GM 1	25SE1967	0.85376)	(1545	WL 1	2DC1967	C.10136)	(1549	PO 1	4DC1967	C.02741)
(1428	MU 2	29MY1967	0.77134)	(1417	MO 2	22MY1967	C.01495)	(1429	WL 2	29MY1967	C.06370)
(1406	GR 2	13MY1967	0.90578)	(							

Melosira granulata var. *angustissima* O. Müll.

Melosira granulata var. *angustissima* O. Müller, Hedwigia, 38:315, pl. 12, fig. 28. 1899.

Cells elongate-cylindrical, only 3-6μ in diameter. Length of the pervalvar axis more than 5 times the diameter of the valve. Other features of the morphology and ornamentation of th frustule essentially similar to the nominate variety.

336 MEGRANVA ICT AC OF STATIONS 152

(46910	CH	CC1945	C.00546)	(46521	CH	23NO1945	C.00194)	(46914	CH	19AP1946	C.0C214)
(46924	CH	10MY1946	0.00212)	(46923	CH	22NO1946	0.01311)	(46916	CH	4MY1947	C.0C407)
(46907	CH	JL1947	0.00099)	(46522	CH	21AL1947	C.00291)	(46750	EV	24SE1937	C.32992)
(46744	EV	6DC1937	0.13656)	(1232	E 5	16MY1964	C.00896)	(1233	B 3	5JN2964	0.33340)
(1236	C* 1	8JN1964	0.29931)	(1237	C* 2	8JN1964	C.60325)	(1241	E 2	13JN1964	C.C6653)
(1247	B 3	14JL1964	0.00854)	(1248	B 3	24JL1964	0.00985)	(1249	C 3	8JL1964	C.01086)
(1251	C 7	16JL1964	0.00579)	(1252	C* 1	16JL1964	C.03626)	(1253	C* 2	16JL1964	C.01366)
(1254	D 2	15JL1964	0.02681)	(1256	E 2	14JL1964	C.04030)	(1257	E 3	14JL1964	C.0C479)
(1261	B 3	2AU1964	0.00785)	(1264	C* 1	10AU1964	1.35156)	(1265	C* 2	10AU1964	C.01341)
(1266	D 3	18AU1964	0.01403)	(1268	E 2	15AU1964	C.00547)	(1272	C* 1	10SE1964	C.11082)
(1273	C* 2	10SE1964	0.01613)	(1274	D 1	17SE1964	C.C1408)	(1275	D 2	17SE1964	C.09677)
(1277	D 4	18SE1964	0.01239)	(1279	E 1	16SE1964	C.29057)	(1280	E 2	16SE1964	C.05446)
(1284	E 6	17SE1964	C.02224)	(1286	F 2	15SE1964	C.02189)	(1288	B 3	15OC1964	2.85521)
(1445	B 6	14OC1964	0.01957)	(1290	C* 1	16OC1964	C.10612)	(1291	C* 2	16OC1964	C.0C245)
(1292	D 1	15OC1964	0.00373)	(1294	D 3	15CC1964	C.00330)	(1297	D 4	14CC1964	C.00190)
(1298	E 1	12OC1964	0.03770)	(1299	E 2	12CC1964	C.09739)	(1300	E 3	13CC1964	C.C5012)
(1302	E 5	13OC1964	0.02024)	(1303	E 6	13CC1964	C.10075)	(1305	F 2	11OC1964	C.0C690)
(1306	F 3	11OC1964	0.00554)	(1308	C 7	6NO1964	C.C1217)	(1309	C* 1	10NC1964	C.CC965)
(1316	D 6	9NO1964	C.00756)	(1317	E 1	6AC1964	C.00574)	(1318	E 2	7NC1964	C.C1712)
(1319	E 3	7NO1964	0.00524)	(1320	E 4	7NO1964	C.C1241)	(1321	E 5	7AC1964	0.00319)
(1322	E 6	7NO1964	0.01666)	(1323	F 1	6AC1964	C.00557)	(1337	C 3	2MR1967	C.C1176)
(1338	C 3	28MR1967	0.00793)	(1340	C 7	28MR1967	C.00436)	(1341	A 3	19AP1967	C.12475)
(1342	A 4	19AP1967	0.34288)	(1346	C 7	21AP1967	C.00267)	(1348	E 5	23AP1967	C.0C137)
(1408	A 3	23MY1967	C.01785)	(1411	C 3	31MY1967	C.00821)	(1412	C 5	31MY1967	C.CC842)
(1432	A 4	13JN1967	0.02299)	(1433	C 3	17JN1967	C.11626)	(1436	E 2	15JN1967	C.0C724)
(1446	A 3	11JL1967	C.94173)	(1447	A 4	11JL1967	C.01403)	(1451	C 7	14JL1967	C.CC197)
(1452	E 2	14JL1967	0.52157)	(1454	E 5	15JL1967	C.03001)	(1506	A 6	29AU1967	C.01048)
(1508	C 3	25E1967	0.00400)	(1511	E 2	15E1967	C.05525)	(1532	A 3	18SE1967	C.5C590)
(1533	A 4	19SE1967	0.03714)	(1534	A 6	19SE1967	C.29163)	(1535	C 7	20SE1967	C.00966)
(1536	E 2	24SE1967	0.11180)	(1537	E 3	24SE1967	C.06469)	(1538	E 5	23SE1967	C.C1105)
(1539	C 3	4OC1967	1.17742)	(1541	E 2	11OC1967	C.10643)	(1542	E 3	11OC1967	C.01017)
(1387	GS11	12MY1967	0.00792)	(1388	GS12	12MY1967	0.05430)	(1389	GS13	12MY1967	C.32748)
(1391	GS15	12MY1967	0.01915)	(1392	GS16	12MY1967	C.09554)	(1393	GS17	13MY1967	C.01096)
(1394	GS18	13MY1967	0.01376)	(1395	GS19	13MY1967	C.08220)	(1396	GS20	13MY1967	3.62547)

(1397	GS21	13MY1967	0.08808)	(1554	GS 1	30C1967	0.14943)	(1556	GS 3	30C1967	C.01043)
(1558	GS 5	40C1967	0.00396)	(1560	GS 8	40C1967	C.02361)	(1561	GS 9	40C1967	C.C1174)
(1563	GS11	50C1967	0.00468)	(1564	GS12	50C1967	C.19587)	(1565	GS13	50C1967	C.02535)
(1566	GS14	50C1967	0.05723)	(1567	GS15	50C1967	0.06510)	(1568	GS16	50C1967	1.41412)
(1569	GS17	5EC1967	0.13973)	(1571	GS19	60C1967	C.13698)	(1572	GS20	60C1967	C.12618)
(1573	GS21	60C1967	1.01912)	(1574	GS22	60C1967	C.04890)	(1575	GS28	60C1967	C.38704)
(1544	MU 1	20C1967	4.42252)	(1547	MS 1	20C1967	0.16766)	(1520	MO 1	18SE1967	14.86162)
(1521	SH 1	18SE1967	3.23102)	(1522	BH 1	18SE1967	1.77969)	(1523	RA 1	19SE1967	C.01845)
(1526	MO 1	20SE1967	1.09234)	(1527	TR 1	20SE1967	0.08176)	(1529	KN 1	20SE1967	C.02398)
(1530	FR 1	24SE1967	4.80048)	(1531	GH 1	25SE1967	19.07016)	(1545	WL 1	20C1967	C.23650)
(1546	CA 1	30C1967	0.05088)	(1549	MO 1	40C1967	0.78114)	(1551	ES 1	50C1967	C.41537)
(1552	SH 1	60C1967	0.20469)	(1550	MR 1	50C1967	1.44963)	(1553	SG 1	60C1967	1.25260)
(1428	MU 2	29MY1967	8.87041)	(1426	MS 2	29MY1967	0.66142)	(1427	LU 2	29MY1967	0.30266)
(1417	MO 2	22MY1967	1.07677)	(1418	SH 2	22MY1967	0.38880)	(1399	PW 2	5MY1967	C.C1360)
(1402	TR 2	6MY1967	0.03249)	(1354	GH 2	25AP1967	0.09839)	(1429	WL 2	29MY1967	5.43582)
(1403	CA 2	10MY1967	0.05231)	(1404	MG 2	10MY1967	2.03252)	(1405	ES 2	12MY1967	C.36120)
(1407	SM 2	14MY1967	0.01194)	(1406	GB 2	13MY1967	C.56072)	(			

Melosira granulata var. *angustissima* fo. *curvata* (Grun.)

Melosira granulata var. *curvata* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 87, fig. 18. 1882.

Cells bent in the pervalvar axis, forming lax spiral colonies. Other morphologic features essentially similar to var. *angustissima*.

Both of the above entities are found in abundance only in eutrophied portions of Lake Michigan. *M. granulata* var. *angustissima* fo. *curvata* seems to occur only under highly eutrophic conditions and may represent a response of the previous variety to such conditions.

337 MEGRVAFC TCT NC OF STATICNS 10

(1396	GS20	13MY1967	0.03330)	(1568	GS16	50C1967	C.00289)	(1544	MU 1	20C1967	C.53375)
(1522	BH 1	18SE1967	0.40845)	(1531	GH 1	25SE1967	0.99746)	(1428	MU 2	29MY1967	C.00301)
(1417	MO 2	22MY1967	0.02243)	(1350	BH 2	19AP1967	1.05725)	(1429	WL 2	29MY1967	C.11679)
(1406	GB 2	13MY1967	0.24801)	(							

Melosira granulata var. *muzzanensis* (Meist.) Bethge

Melosira muzzanensis Meister, Kryptog.-Fl. Schweiz, 4(1):41, pl. 1, fig. 10. 1912.
Melosira granulata var. *muzzanensis* (Meist.) Bethge, Pflanzenforsch., 3:32. 1925.

In this entity the pervalvar axis of cells is much shorter than in the nominate variety, height of the valve mantle only 4-8μ. This variety is apparently not polymorphic and all observed specimens are finely structured. Other morphologic features essentially similar to the nominate variety.

This entity occurs occasionally but always in low abundance in our collections from Lake Michigan. Its taxonomic status is somewhat questionable in that it does not show the polymorphism characteristic of the other varieties of this taxon. It should be pointed out that post-auxospore valves of *M. islandica* have similar length to width ratios.

338 MEISLAVA TCT NO OF STATICNS 65

(46914	CH	19AP1946	0.00214)	146924	CH	10MY1946	0.00282)	1469C6	CH	MY1947	C.00531)
(1251	C 7	16JL1964	0.00575)	(1254	D 2	15JL1964	0.01341)	(1255	D 5	15JL1964	C.C1027)
(1257	E 3	14JL1964	0.00957)	(1281	E 3	16SE1964	C.00785)	(1341	A 3	19AP1967	C.00868)
(1342	A 4	19AP1967	0.01444)	(1344	C 3	25AP1967	0.02151)	(1345	C 5	25AP1967	C.00975)
(1346	C 7	21AP1967	0.01068)	(1347	E 2	23AP1967	C.00650)	(1348	E 5	23AP1967	C.CC548)
(1368	A 3	4MY1967	0.08797)	(1369	A 4	4MY1967	C.04846)	(1370	A 6	3MY1967	C.00691)
(1371	C 3	4MY1967	0.34858)	(1372	C 5	5MY1967	0.06029)	(1373	C 7	5MY1967	C.13121)
(1374	E 2	7MY1967	0.00598)	(1375	E 3	7MY1967	C.01925)	(1376	E 5	6MY1967	C.01687)
(1408	A 3	23MY1967	0.01789)	(1409	A 4	23MY1967	0.05356)	(1410	A 6	24MY1967	C.04511)
(1411	C 3	31MY1967	C.C3282)	(1412	C 5	31MY1967	0.04630)	(1413	C 7	25MY1967	0.C2527)
(1414	E 2	28MY1967	0.10411)	(1415	E 3	28MY1967	C.C7870)	(1416	E 5	28MY1967	C.CC875)
(1432	A 4	13JN1967	0.01533)	(1433	C 3	17JN1967	C.08397)	(1434	C 5	17JN1967	C.0658C)
(1435	C 7	13JN1967	0.03473)	(1436	E 2	15JN1967	C.02171)	(1437	E 3	15JN1967	C.47103)
(1438	E 5	14JN1967	0.06173)	(1446	A 2	11JL1967	C.00978)	(1449	C 3	16JL1967	C.0e496)
(1511	E 2	1SE1967	0.00614)	(1512	E 3	1SE1967	C.C0393)	(1537	E 3	24SE1967	C.C1725)
(1538	E 5	23SE1967	0.01105)	(1377	GS 1	9MY1967	C.05937)	(1380	GS 4	9MY1967	C.C1C09)
(1382	GS 6	10MY1967	0.02220)	(1384	GS 8	10MY1967	0.01109)	(1385	GS 9	10MY1967	0.00942)
(1386	GS10	12MY1967	0.01149)	(1387	GS11	12MY1967	0.02376)	(1388	GS12	12MY1967	C.C1810)
(1389	GS13	12MY1967	0.00516)	(1394	GS18	13MY1967	C.00344)	(1397	GS21	13MY1967	C.00392)
(1398	GS22	14MY1967	C.CC911)	(1567	GS15	5CC1967	0.01111)	(1569	GS17	50C1967	C.CC257)
(1428	MU 2	29MY1967	0.00603)	(1426	MS 2	29MY1967	0.02100)	(1400	SB 2	8MY1967	C.01191)
(1422	GA 2	23MY1967	C.01022)	(1424	KA 2	25MY1967	0.02665)	(			

Melosira islandica O. Müll.

Melosira islandica O. Müller, Jahrb. wissench. Bot., 43:56, pl. 1, figs. 3-6. 1906.

Cells cylindrical, joined by the valve faces into long, closely appressed filamentous colonies. Individual valves of specimens from Lake Michigan 8-30μ in diameters, 7-21μ high (valve mantle). Pseudosulcus little developed, apparent only as a narrow, sharply-angled identation. Sulcus a shallow furrow with an internal thickening intruding into the interior of the cell. Neck short, in optical section more or less bowl-shaped. Degree of silicification and ornamentation of the frustule highly variable. Ornamentation of the valve surface consists of numerous, randomly arranged, small areolae. The margin of the valve is usually furnished with a corona of very small and inconspicuous spines. Ornamentation of the valve mantle is pleomorphic. In all cases the elements are arranged in rows running parallel to the pervalvar axis. The following types of ornamentation may be found:

Status α: Ornamentation of the valve mantle consisting of rows of coarse, circular areolae. Areolae rows 10-12 in 10μ with 12-13 areolae in 10μ within the individual rows. Frustules are heavily silicified.

Status β: Both finely and coarsely areolate frustules found in the same colony.

Status γ: Ornamentation of the valve mantle consisting of fine circular areolae. Areolae rows 13-16 in 10μ with 14-18 areolae in 10μ within the rows.

This species is usually abundant and often dominant in spring collections from Lake Michigan. Populations from the offshore waters have usually been referred to *M. islandica* subsp. *helvetica* O. Müll. In the material that we have examined we can find no justification for the sub-specific designation for specimens from Lake Michigan. The populations of variable morphology grade together to the extent that any separation is entirely artificial. It appears that environmental conditions determine the degree of silicification to at least a certain degree as collections from the eutrophied portions of the lake contain only coarsely structured specimens. Auxospore populations are common and post-auxospore cells usually are characterized by much foreshortened pervalvar axes.

339 MEISLAVH TOT NO OF STATIONS 311

(60973	CH		1876	3.61360)	(3540	CH		11MY1879	8.81948)	(3541	CH		1FE1881	5.92781)
(3507	CH		19FE1881	4.75436)	(46921	CH		23AG1945	C.00194)	(46908	CH		DE1945	C.46324)
(46917	CH		12JA1946	0.18021)	(46915	CH		20FE1946	1.84943)	(46914	CH		19AP1946	38.55402)
(46924	CH		10MY1946	51.40315)	(46923	CH		22NO1946	0.08305)	(46920	CH		20DE1946	C.13033)
(46905	CH		JA1947	1.07611)	(46909	CH		MR1947	12.13515)	(46912	CH		AP1947	25.41106)
(46916	CH		4MY1947	1.03653)	(46906	CH		MY1947	14.84C18)	(46919	CH		5JN1947	C.19727)
(46907	CH		JL1947	0.80131)	(46913	CH		6AU1947	0.26148)	(46922	CH		21AU1947	C.37802)
(46758	EV		5JN1937	34.34846)	(46771	EV		11JN1937	5C.72511)	(46743	EV		20JN1937	2C.86151)
(46745	EV		3JL1937	0.18809)	(46770	EV		9JL1937	0.03578)	(46764	EV		17JL1937	2.25624)
(46757	EV		25JL1937	2.29166)	(46747	EV		1AU1937	2.91111)	(46763	EV		23AU1937	1.C2490)
(46769	EV		7SE1937	0.04342)	(46752	EV		15SE1937	0.06530)	(46760	EV		22SE1937	C.C2462)
(46744	EV		6OC1937	0.28410	(46748	EV		13OC1937	78.30913)	(46767	EV		27OC1937	C.C9029)
(46749	EV		12MR1938	27.86745	(46768	EV		16MR1938	58.03322)	(46762	EV		18MR1938	2.82311)
(46751	EV		30MR1938	56.58775	(46772	EV		18AP1938	61.80269)	(46756	EV		27AP1938	41.84225)
(46759	EV		19MY1938	80.35110)	(46761	EV		27MY1938	36.93448)	(46766	EV		14DE1938	C.14259)
(1223	B 3		18MY1964	75.91217)	(1224	B 4		18MY1964	82.89383)	(1225	C 6		15MY1964	57.35005)
(1226	C 7		16MY1964	43.68340)	(1227	C* 2		13MY1964	41.60544)	(1228	D 2		14MY1964	58.03928)
(1229	D 5		14MY1964	43.66580)	(1230	E 2		16MY1964	54.76366)	(1231	E 3		16MY1964	72.42441)
(1232	E 5		16MY1964	51.13220)	(1233	B 3		5JN2964	29.17291)	(1234	B 3		18JN1964	18.72852)
(1235	C 7		16JN1964	7.90804)	(1439	B 6		5JN1964	43.91608)	(1236	C* 1		8JN1964	30.01819)
(1237	C* 4		8JN1964	3C.31708)	(1238	D 3		11JN1964	77.70000)	(1239	C 4		11JN1964	55.31766)
(1240	D 6		10JN1964	57.12444)	(1241	E 2		13JN1964	6C.79486)	(1242	E 3		13JN1964	68.12157)
(1243	E 6		13JN1964	48.52585)	(1244	F 1		11JN1964	11.20577)	(1245	F 2		11JN1964	13.C6964)
(1246	F 3		11JN1964	17.15173)	(1247	B 3		14JL1964	21.81242)	(1248	B 3		24JL1964	17.24205)
(1440	B 6		11JL1964	21.66783)	(1441	B 6		24JL1964	44.40625)	(1249	C 3		8JL1964	34.22052)
(1250	C 6		10JL1964	42.87769)	(1251	C 7		16JL1964	6.28657)	(1252	C* 1		16JL1964	11.12971)

1253	C' 2	16JL1964	38.82143	1254	D 2	15JL1964	54.29994	1255	D 5	15JL1964	38.44771
1256	E 2	14JL1964	60.01310	1257	E 3	14JL1964	64.14642	1258	F 1	6JL1964	12.38879
1259	F 2	6JL1964	20.66605	1260	F 3	6JL1964	17.78175	1261	B 3	2AU1964	3.98383
1262	B 3	17AU1964	6.32087	1442	B 6	2AU1964	10.15079	1443	B 6	16AU1964	19.09619
1263	C 7	15AU1964	3.36269	1264	C' 1	10AU1964	10.13670	1265	C' 2	10AU1964	5.47694
1266	D 3	18AU1964	20.13465	1267	D 6	18AU1964	0.65716	1268	E 2	15AU1964	32.93576
1269	E 3	15AU1964	35.49308	1270	F 1	10AU1964	4.38393	1444	B 6	19SE1964	17.61192
1271	C 7	22SE1964	0.91402	1272	C' 1	10SE1964	8.90695	1273	C' 2	10SE1964	5.4C911
1274	D 1	17SE1964	7.22564	1275	D 2	17SE1964	5.41900	1276	D 3	18SE1964	16.55743
1277	D 4	18SE1964	5.20511	1278	D 6	18SE1964	2.15227	1279	E 1	16SE1964	7.14650
1280	E 2	16SE1964	53.37326	1281	E 3	16SE1964	29.39214	1282	E 4	16SE1964	8.53186
1283	E 5	16SE1964	24.88600	1284	E 6	17SE1964	4.89308	1285	F 1	15SE1964	4.68814
1286	F 2	15SE1964	9.96060	1287	F 3	15SE1964	6.30504	1288	B 3	15OC1964	C.36571
1445	B 6	14OC1964	0.63896	1289	C 7	14OC1964	C.67719	1290	C' 1	14OC1964	C.C7580
1291	C' 2	16OC1964	0.34245	1292	D 1	15OC1964	0.71929	1293	D 2	15OC1964	0.30186
1294	D 3	15CC1964	1.09767	1295	D 4	15CC1964	1.39137	1296	D 5	14CC1964	C.75933
1297	D 6	14OC1964	4.53143	1298	E 1	12CC1964	0.29082	1299	E 2	12OC1964	3.95853
1300	E 3	13CC1964	5.76338	1301	E 4	13OC1964	11.12779	1302	E 5	13CC1964	4.81820
1303	E 6	13OC1964	7.83611	1304	F 1	11CC1964	0.57789	1305	F 2	11OC1964	C.21909
1306	F 3	11CC1964	0.27163	1307	B 6	NO1964	C.80820	1308	C 7	6ND1964	C.44838
1309	C' 1	10NO1964	0.00322	1310	C' 2	10ND1964	C.08163	1311	D 1	8ND1964	C.00774
1312	D 2	8NO1964	C.29179	1313	D 3	9NC1964	0.22973	1314	D 4	9NC1964	0.55407
1315	D 5	9NO1964	C.57780	1316	D 6	9ND1964	1.58658	1317	E 1	6NC1964	0.00574
1318	E 2	7NO1964	0.44518	1319	E 3	7ND1964	1.09968	1320	E 4	7NC1964	C.66598
1321	E 5	7NO1964	0.33518	1322	E 6	7ND1964	C.77982	1323	F 1	6NC1964	C.24390
1324	F 2	6NO1964	0.44954	1325	F 3	6ND1964	C.35265	1336	C 3	27JA1967	3.23494
1337	C 3	2MR1967	53.49872	1338	C 3	28MR1967	51.46242	1339	C 5	28MR1967	49.10519
1340	C 7	28MR1967	56.24677	1341	A 3	19AP1967	55.05353	1342	A 4	19AP1967	48.78214
1343	A 6	19AP1967	42.21233	1344	C 5	25AP1967	66.82108	1345	C 5	25AP1967	47.75548
1346	C 7	21AP1967	68.32413	1347	E 2	23AP1967	58.84074	1348	E 5	23AP1967	56.23029
1368	A 3	4MY1967	57.56047	1369	A 4	4MY1967	73.05527	1370	A 6	3MY1967	64.12704
1371	C 3	4MY1967	67.22379	1372	C 5	5MY1967	62.06554	1373	C 7	5MY1967	76.67293
1374	E 2	7MY1967	56.20502	1375	E 3	7MY1967	61.98416	1376	E 5	6MY1967	36.2C418
1408	A 3	23MY1967	36.86678	1409	A 4	23MY1967	49.57448	1410	A 6	24MY1967	46.17726
1411	C 3	31MY1967	54.28137	1412	C 5	31MY1967	63.64171	1413	C 7	25MY1967	72.3C627
1414	E 2	28MY1967	63.94626	1415	E 3	28MY1967	66.30957	1416	E 5	28MY1967	57.86263
1431	A 3	12JN1967	34.[illegible]593	1432	A 4	13JN1967	52.03329	1433	C 3	17JN1967	18.C8591
1434	C 5	17JN1967	65.52817	1435	C .	13JN1967	55.25211	1436	E 2	15JN1967	49.85868
1437	E 3	15JN1967	69.71173	1438	E 5	14JN1967	68.88162	1446	A 3	11JL1967	21.C6C61
1447	A 4	11JL1967	22.40422	1448	A 6	10JL1967	C.17330	1449	C 3	10JL1967	24.07428
1450	C 5	10JL1967	35.58983	1451	C 7	16JL1967	8.81855	1452	E 2	14JL1967	11.17440
1453	E 3	15JL1967	51.31056	1454	E 5	15JL1967	2.66C53	1504	A 3	28AU1967	4.14764
1505	A 4	28AU1967	3.96784	15C8	C 3	2SE1967	5.31532	1509	C 5	2SE1967	15.78398
1510	C 7	29AU1967	1.77047	1511	E 2	1SE1967	5.58676	1512	E 3	1SE1967	12.64332
1513	E 5	31AU1967	4.25661	1532	A 3	18SE1967	C.45991	1533	A 4	19SE1967	C.77987
1534	A 6	19SE1967	0.01861	1535	C 7	20SE1967	0.22532	1536	E 2	24SE1967	4.19516
1537	E 3	24SE1967	9.96291	1538	E 5	23SE1967	6.18682	1539	C 3	4OC1967	C.02013
1540	C 5	4OC1967	0.43037	1541	E 2	11OC1967	1.61779	1542	E 3	11CC1967	C.78316
1543	E 5	10CC1967	0.50280	1377	GS 1	9MY1967	59.01443	1378	GS 2	9MY1967	33.85054
1379	GS 3	9MY1967	17.11438	1380	GS 4	9MY1967	18.24347	1381	GS 5	10MY1967	22.87363
1382	GS 6	10MY1967	48.18340	1383	GS 7	10MY1967	33.3C838	1384	GS 8	10MY1967	45.3C214
1385	GS 9	10MY1967	35.10625	1386	GS1C	12MY1967	46.85434	1387	GS11	12MY1967	33.82445
1388	GS12	12MY1967	25.76169	1389	GS13	12MY1967	7.40015	1390	GS14	12MY1967	13.97534
1391	GS15	12MY1967	17.09523	1392	GS16	12MY1967	14.23860	1393	GS17	13MY1967	16.87486
1394	GS18	13MY1967	4.57563	1395	GS19	13MY1967	3.37036	1396	GS20	13MY1967	C.82868
1397	GS21	13MY1967	1.09881	1398	GS22	14MY1967	27.20345	1554	CS 1	3CC1967	1C.95851
1555	GS 2	3OC1967	2.96610	1556	GS 3	3OC1967	1.22021	1557	CS 4	3OC1967	6.27803
1558	GS 5	4OC1967	2.08102	1559	GS 7	4CC1967	5.87536	1560	CS 8	4OC1967	8.26524
1561	GS 9	4OC1967	9.86089	1562	GS10	5CC1967	1C.57867	1563	CS11	5CC1967	7.2C198
1564	GS12	5OC1967	0.02798	1565	GS13	5CC1967	0.03549	1566	CS14	5OC1967	C.64208
1567	GS15	5OC1967	0.61127	1568	GS1e	5CC1967	C.65656	1569	CS17	5CC1967	C.34784
1570	GS18	5CC1967	0.63467	1571	GS19	6CC1967	C.00410	1573	CS21	6CC1967	C.03024
1574	GS22	6OC1967	3.02019	1575	GS2B	6CC1967	0.04129	1547	PS 1	2OC1967	2.29940
1524	MI 1	2OSE1967	0.04378	1546	LU 1	2OC1967	C.02001	1520	MO 1	18SE1967	C.75440
1523	RA 1	19SE1967	0.00923	1526	MO 1	2OSE1967	C.71685	1527	TR 1	2OSE1967	C.15723
1528	SB 1	2CSE1967	0.21658	1529	KN 1	2CSE1967	0.81545	1530	FR 1	24SE1967	C.84008
1531	GH 1	25SE1967	0.05072	1545	WL 1	2OC1967	C.06081	1548	CA 1	3OC1967	0.03816
1549	MQ 1	4CC1967	0.78114	1551	ES 1	5OC1967	0.03195	1552	SM 1	6OC1967	C.25091
1550	MR 1	5CC1967	0.09912	1553	SG 1	6CC1967	0.14689	1428	PU 2	29MY1967	C.14764
1426	MS 2	29MY1967	6.71916	1351	MI 2	21AP1967	31.08145	1427	LU 2	29MY1967	15.37045
1417	MO 2	22MY1967	4.42650	1418	SM 2	22MY1967	3.23484	1350	BM 2	19AP1967	C.98478
1425	RA 2	25MY1967	29.84705	1299	PB 2	5MY1967	5C.92491	1401	MO 2	6MY1967	5C.79962
1402	TR 2	6MY1967	50.76889	1400	SB 2	6MY1967	48.79675	1352	KN 2	21AP1967	15.92784
1353	FR 2	23AP1967	6.58228	1354	GH 2	25AP1967	7.45663	1429	WL 2	29MY1967	0.2C172
1403	CA 2	1CMY1967	16.11089	1404	MQ 2	1CMY1967	8.13008	1405	ES 2	12MY1967	1.44479
1407	SM 2	14MY1967	3.53496	1349	CL 2	19AP1967	44.42847	1419	BU 2	23MY1967	18.40424
1420	IM 2	23MY1967	10.39275	1421	CM 2	23MY1967	18.04301	1422	GA 2	23MY1967	15.04113
1424	KN 2	25MY1967	27.28484	1430	MC 2	12JN1967	C.04935				

Melosira italica subsp. *subartica* O. Müll.

Melosira italica subsp. *subartica* O. Müller, Jahrb. Wiss. Bot., 43:78, pl. 2, figs. 7-11. 1906.

Cells cylindrical, joined by the valve faces into long, more or less closely appressed colonies. Individual valves of specimens from Lake Michigan 7-15μ in diameter, 5-20μ high (valve mantle). Valve mantle parallel, valve surface flat or only slightly convex. Pseudosulcus very small, not apparent. Sulcus moderately deeply incised, forming a broad angle, with a conspicuous internal thickening extending into the lumen of the cell. Neck very short and poorly defined. Degree of silicification of the valve mantle variable, usually moderately strong. Ornamentation of the valve surface is comprised of very fine, irregularly arranged puncta with elongate, ray-like puncta at the margins. The margin of the valve surface is furnished with a corona of small species. Ornamentation of the valve mantle comprised of spiral rows of fine, usually more or less elongate, puncta. This species is somewhat pleomorphic but does not exhibit the pronounced structural differences found in other members of the genus. Strongly silicified forms (α status) with about 18 striae in 10μ and the same number of puncta in 10μ within the striae. Weakly silicified forms (β status) with about 20 striae in 10μ and about 22 puncta in 10μ within the rows.

This entity occurs sporadically in our collections from Lake Michigan. It is common in a number of habitats surrounding the lake, and the populations we have encountered are perhaps derived from tributaries to the lake which became established in the open waters.

340 MEITALIC ICT AC CP STATIONS 172

146908	CH	DE1965	C.05035	146514	CH	19AP1968	0.00214	146905	CH	JA1967	C.CC368				
146909	CH	MR1967	0.00455	146506	CH	MY1967	C.00066	1223	B 3	18MY1964	C.0C156				
1224	B 4	18MY1964	0.1C979	1225	C 6	15MY1964	C.00784	1226	C 7	16MY1964	C.01522				
1227	C* 2	13MY1964	0.01645	1228	D 2	14MY1964	C.34061	1229	D 5	14MY1964	C.08881				
1230	E 2	16MY1964	0.21633	1231	E 3	16MY1964	C.03180	1232	E 5	16MY1964	C.24349				
1439	B 6	5JN1964	0.01399	1236	C* 1	8JN1964	0.01225	1237	C* 2	8JN1964	C.C464C				
1238	D 3	11JN1964	0.09600	1239	D 4	11JN1964	C.00464	1240	D 6	10JN1964	0.02148				
1241	E 2	13JN1964	0.07836	1242	E 3	13JN1964	0.14837	1243	E 6	13JN1964	C.C3758				
1244	F 1	11JN1964	0.00548	1245	F 2	11JN1964	C.01383	1246	F 3	11JN1964	0.03586				
1440	B 6	11JL1964	0.00369	1250	C 6	10JL1964	0.02878	1254	D 2	15JL1964	C.00575				
1255	D 5	15JL1964	0.00513	1256	E 2	14JL1964	0.06412	1257	E 3	14JL1964	0.04939				
1259	F 2	6JL1964	0.00310	1260	F 3	6JL1964	0.00764	1262	B 3	17AU1964	C.CC630				
1268	E 2	15AU1964	0.00547	1269	E 3	15AU1964	C.09319	1270	F 1	10AU1964	C.CC272				
1281	E 3	16SE1964	0.0157C	1297	D 6	14OC1964	C.00190	1299	E 2	12OC1964	C.0C314				
1300	E 3	13OC1964	0.01074	1301	E 4	13OC1964	0.00442	1304	F 1	11OC1964	C.0C988				
1317	E 1	6NO1964	0.00574	1320	E 4	7NO1964	0.00414	1321	E 5	7NO1964	C.0C958				
1322	E 6	7NO1964	C.01000	1336	C 3	27JA1967	0.19641	1337	C 3	2MR1967	4.61470				
1338	C 3	28MR1967	2.96187	1339	C 5	28MR1967	4.80140	1340	C 7	28MR1967	1.47616				
1341	A 3	19AP1967	1.51872	1342	A 4	19AP1967	1.51589	1343	A 4	15AP1967	C.12158				
1344	C 3	25AP1967	1.27388	1345	C 5	25AP1967	7.50443	1346	C 7	21AP1967	1.68240				
1347	E 2	23AP1967	6.71490	1348	E 5	23AP1967	1.91912	1368	A 3	4MY1967	3.29877				
1369	A 4	4MY1967	3.65276	1370	A 6	3MY1967	0.60536	1371	C 3	4MY1967	4.84787				
1372	C 5	5MY1967	4.96524	1373	C 7	5MY1967	3.99338	1374	E 2	7MY1967	4.18410				
1375	E 3	7MY1967	6.40054	1376	E 5	6MY1967	C.98381	1408	A 3	23MY1967	1.56508				
1409	A 4	23MY1967	4.99911	1410	A 6	24MY1967	0.51308	1411	C 3	31MY1967	1.74322				
1412	C 5	31MY1967	5.89275	1413	C 7	25MY1967	3.31680	1414	E 2	28MY1967	1.17548				
1415	E 3	28MY1967	5.82363	1416	E 5	28MY1967	1.68383	1431	A 3	12JN1967	C.67084				
1432	A 4	13JN1967	5.90068	1433	C 3	17JN1967	1.80855	1434	C 5	17JN1967	5.65259				
1435	C 7	13JN1967	0.88403	1436	E 2	15JN1967	7.85208	1437	E 3	15JN1967	4.14502				
1438	E 5	14JN1967	2.16049	1446	A 3	11JL1967	C.42806	1447	A 4	11JL1967	C.32747				
1448	A 6	10JL1967	0.02829	1449	C 3	16JL1967	1.73870	1450	C 5	16JL1967	2.53261				
1451	C 7	16JL1967	0.06693	1452	E 2	14JL1967	0.48537	1453	E 3	15JL1967	13.26997				
1454	E 5	15JL1967	0.C1600	1504	A 3	28AU1967	0.01481	1506	A 6	29AU1967	C.61046				
1509	C 5	25E1967	0.31796	1511	E 2	1SE1967	0.06139	1512	E 3	1SE1967	1.02340				
1513	E 5	31AU1967	0.02534	1532	A 3	18SE1967	0.02957	1534	A 6	19SE1967	C.CC620				
1535	C 7	20SE1967	0.00644	1536	E 2	24SE1967	C.04090	1537	E 3	24SE1967	0.07240				
1538	E 5	23SE1967	0.09391	1539	C 3	4OC1967	C.03C19	1541	E 2	11OC1967	C.35381				
1542	E 3	11OC1967	0.47803	1377	GS 1	5MY1967	0.64951	1378	GS 2	9MY1967	C.63498				
1379	GS 3	9MY1967	0.12998	1380	GS 4	9MY1967	C.23541	1381	GS 5	10MY1967	C.36493				
1382	GS 6	10MY1967	0.97144	1383	GS 7	10MY1967	0.53464	1384	GS 8	10MY1967	C.77641				
1385	GS 9	10MY1967	C.76758	1386	GS1C	12MY1967	2.61419	1387	GS11	12MY1967	1.01394				
1388	GS12	12MY1967	1.03167	1389	GS13	12MY1967	0.32746	139C	GS14	12MY1967	C.24662				
1391	GS15	12MY1967	0.51717	1352	GS16	12MY1967	C.09554	1393	GS17	13MY1967	C.25586				
1394	GS18	13MY1967	C.11009	1355	GS19	13MY1967	0.32882	1396	GS20	13MY1967	C.0C666				
1397	GS21	13MY1967	C.00585	1398	GS22	14MY1967	2.33780	1554	GS 1	3OC1967	0.17790				
1555	GS 2	3OC1967	0.01059	1556	GS 3	3OC1967	0.00521	1562	GS10	5OC1967	C.00987				
1563	GS11	5OC1967	0.00468	1567	GS15	5OC1967	C.01746	1568	GS16	5OC1967	C.0C144				
1569	GS17	5OC1967	0.01189	1570	GS18	5OC1967	0.00992	1571	GS19	6OC1967	C.00059				
1574	GS22	6OC1967	C.0C863	1526	MC 1	20SE1967	C.00569	1528	SB 1	20SE1967	C.C1444				
1549	MO 1	4OC1967	0.01370	1550	MR 1	5OC1967	0.02478	1428	PU 2	29MY1967	0.00301				
1426	MS 2	29MY1967	1.06037	1351	MI 2	21AP1967	0.22984	1427	LU 2	29MY1967	2.13075				
1417	MO 2	22MY1967	0.13085	1425	MA 2	25MY1967	0.01768	1399	PW 2	5MY1967	C.74129				
1401	MO 2	6MY1967	0.37041	14C2	TR 2	6MY1967	0.45484	1400	SB 2	6MY1967	1.00071				
1352	KW 2	21AP1967	0.10308	1353	FR 2	23AP1967	0.10549	1354	GM 2	25AP1967	C.08976				
1429	WL 2	29MY1967	0.16987	14C3	CA 2	10MY1967	C.20923	14C5	ES 2	12MY1967	C.C1290				
1407	SM 2	14MY1967	0.02388	1349	CI 2	19AP1967	C.03233	1419	BU 2	23MY1967	C.03662				
1421	CH 2	23MY1967	0.05205	1422	GA 2	23MY1967	C.02044	1423	BA 2	25MY1967	C.04423				
1424	KN 2	25MY1967	0.02665												

Melosira undulata (Ehr.) Kütz.

Gaillonella undulata Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:17. 1840.
Melosira undulata (Ehr.) Kützing, Bacill., p. 54, pl. 2, fig. 9. 1844.

Cells cylindrical, joined by the valve faces into short, poorly adhering colonies. Individual valves of specimens from Lake Michigan 20-70μ in diameter, 20-35μ high (valve mantle). Valve mantles parallel, valve surfaces flat in the center, convex only at the margins, therefore forming a narrow and inconspicuous pseudosulcus. The sulcus and associated structures are entirely lacking. The walls of the frustule are of varying thickness, thin at the girdle margins, much thicker at the valve mantle, then becoming somewhat thinner again at the valve surface. As the outer margins of the valve mantle are straight and parallel, the variable thickness of the wall makes the inner surface appear undulate from which the name of the taxon is derived. The ornamentation of the valve mantle consists of straight, parallel rows of puncta, about 16 in 10μ, with complex substructure and apparently subtended by chambers. A conspicuous corona of slime pores is present on the valve mantle about one-third of the distance between the valve surface and the girdle margin. These pores enter the interior of the frustule through a small nipple-like projection on the interior wall. Ornamentation of the valve surface consists of anastomosing radial striae of varying lengths having the same structure as the striae of the valve margin. A small, structureless, area is present at the center of the valve. In some specimens the ornamentation of the wall surface spirals around the midpoint.

This entity is very rare in plankton collections from Lake Michigan. It appears that the specimens found are derived from populations that exist in periphyton communities in relatively deep water (50+m). As Hustedt (1927) points out, the reported modern distribution of this species is primarily tropical, although it is present in tertiary deposits throughout central and northern Europe. Its occurrence in the deep waters of Lake Michigan is somewhat puzzling, although it should be pointed out that a morphologically very similar entity, *Cyclotella fottii* Hust. (Fott, 1935; Jurilj, 1954), has been reported from similar habitats in Lake Ohrid.

In life the colonies are attached to rocks or other solid substrates by slime strands arising from the pores of the terminal cell of the colony. Both the attachment to the substrate and the attachment of the cells to one another is tenuis so that individual free cells are often found.

Coll: 973.

Melosira undulata var. *normanii* Arnott *ex* V. H.

Melosira undulata var. *normanii* Arnott *ex* Van Heurck, Syn. Diat. Belgique, pl. 90, fig. 7. 1882.

In this entity the interior surface of the valve mantle is polygonal. The interior opening of the slime pores occurs at the angles of the polygon and the nipple-like structure surrounding the pore tends to be more highly developed than in the nominate variety. On the basis of the limited number of specimens we have observed from Lake Michigan it appears that the spiral arrangement of the valve ornamentation is more common in this entity than it is in the nominate variety, although both types of ornamentation are found in both taxa.

Very rare in plankton collections from Lake Michigan. It is suspected that the specimens observed are derived from deepwater periphyton communities. The reported distribution of this entity is more northern than that of the nominate variety (Hustedt 1927).

341 MEUNDUVR TOT AC OF STATIONS 2

(1573	GS21	6OC1967	0.00112)	(1550	MR 1	5OC1967	C.03717)	(					

Melosira varians Ag.

Melosira varians Agardh, Syn. Alg., p. 78. 1817.

Cells cylindrical, joined by the valve faces into long, closely appressed colonies. Individual valves of specimens from Lake Michigan 10-33μ in diameter, 8-13μ high (valve mantle). Valve mantles parallel, valve surfaces only slightly convex, therefore forming an inconspicuous pseudosulcus. The sulcus and associated structures are entirely lacking in this species. The walls of the frustule are of similar thickness throughout. The ornamentation of both the valve surface and the valve mantle is composed of very fine puncta which can barely be resolved with the light microscope under optimum optical conditions. In normal preparations the wall appears homogeneous.

This species is occasionally found in nearshore plankton collections from Lake Michigan, especially in areas that have been appreciably eutrophied. Its reported distribution indicates that it reaches its greatest abundance in highly eutrophic waters. It apparently finds its primary habitat in benthic communities although it is not uncommon in the plankton of highly polluted lakes and streams.

342 MEVARIAN TOT AC OF STATIONS 28

(46762	EV	18MR1938	C.04411)	(1571	GS19	6OC1967	0.00527)	(1544	PU 1	2OC1967	C.OC477)		
(1547	PS 1	2OC1967	0.03992)	(1546	LU 1	2OC1967	C.01000)	(1520	MO 1	18SE1967	C.02829)		
(1521	SH 1	18SE1967	1.10778)	(1522	BH 1	18SE1967	0.00365)	(1523	BA 1	19SE1967	C.02768)		
(1526	MC 1	2OSE1967	0.CC569)	(1525	KN 1	2OSE1967	0.01199)	(1530	PR 1	24SE1967	C.35003)		
(1531	GH 1	25SE1967	2.97549)	(1550	MR 1	5OC1967	1.58592)	(1428	PU 2	29MY1967	C.25310)		
(1426	PS 2	29MY1967	0.66162)	(1427	LU 2	29MY1967	3.09527)	(1417	MO 2	22MY1967	C.03385)		
(1418	SH 2	22MY1967	1.69518)	(1350	BH 2	19AP1967	C.15418)	(1401	PO 2	6MY1967	C.C2940)		
(1400	SB 2	6MY1967	0.00596)	(1354	GP 2	25AP1967	0.00690)	(1429	BL 2	29MY1967	C.14864)		
(1406	GB 2	13MY1967	0.01617)	(1422	GA 2	23MY1967	0.05620)	(1423	BA 2	25MY1967	C.CC429)		
(1424	KN 2	25MY1967	0.02665)	(									

Species *incertae sedis*

Melosira sp. #1.

343 MESPECOA TOT NO OF STATIONS 36

(1229	D 5	14MY1964	C.C5921)	(1230	E 2	16PY1564	C.04149)	(1231	E 3	16MY1964	C.34243)		
(1232	E 5	16MY1964	0.40697)	(1235	C 7	16JN1964	0.00565)	(1237	C 2	8JN1964	0.00516)		
(1241	E 2	13JN1964	0.CC739)	(1242	E 3	13JN1964	C.00899)	(1257	E 3	14JL1564	C.CC479)		
(1262	B 3	17AU1964	0.00840)	(1281	E 3	16SE1964	0.00785)	(1346	C 7	21AP1967	C.00534)		
(1370	A 8	3PY1567	0.09667)	(1372	C 5	5MY1567	C.02128)	(1375	E 3	7MY1967	C.CC481)		
(1416	E 5	28MY1967	0.01749)	(1435	C 7	13JN1967	0.00631)	(1450	C 5	16JL1967	C.CC381)		
(1512	E 3	15E1967	0.01571)	(1537	E 3	24SE1967	0.02588)	(1379	GS 3	9MY1967	C.CC619)		
(1380	GS 4	9MY1967	0.01513)	(1381	GS 5	10MY1967	0.02147)	(1384	GS 8	10MY1967	C.00739)		
(1385	GS 9	10MY1967	0.00942)	(1386	GS10	12MY1967	C.01724)	(1389	GS13	12MY1967	C.CC774)		
(1390	GS14	12MY1967	0.01174)	(1391	GS15	12MY1967	0.02873)	(1393	GS17	13MY1967	C.01096)		
(1394	GS18	13MY1967	0.00172)	(1395	GS19	13MY1967	0.01644)	(1554	GS 1	3OC1967	C.0C712)		
(1351	MI 2	21AP1967	0.01241)	(1401	MC 2	6MY1967	0.02352)	(1400	SB 2	6MY1967	C.1C722)		

Genus *Meridion* Agardh
Agardh, Syst. Alg., p. 14. 1824.

Members of the genus *Meridion* find their primary habitat in periphyton communities. Only occasional specimens are found in plankton collections from Lake Michigan and these are undoubtedly derived from shoreline sources.

Meridion circulare (Grev.) Agardh

Echinella circularis Greville, Mem. Vernerian Nat. Hist. Soc., 4:213, pl. 8, fig. 2. 1822.
Meridion circulare (Grev.) Agardh, Consp. Crit. Diat., pt. 3, p. 40. 1831.

344 MRCIRCUL TOT NO OF STATIONS 21

(46743	EV	20JN1937	0.00428)	(1341	A 3	19AP1967	0.00108)	(1348	E 5	23AP1967	C.CC137)
(1394	GS18	13MY1967	0.00344)	(1569	GS17	5CC1967	0.00297)	(1571	GS19	6OC1967	C.CCC59)
(1544	MU 1	20C1967	0.00238)	(1522	BH 1	18SE1967	C.00365)	(1550	MR 1	5CC1967	C.02478)
(1426	MS 2	29MY1967	0.01050)	(1427	LU 2	29MY1967	0.01211)	(1417	MD 2	22MY1967	C.C1122)
(1418	SH 2	22MY1967	0.0211C)	(1350	BH 2	19AP1967	C.00881)	(1401	PO 2	8MY1967	C.CC588)
(1400	SB 2	8MY1967	0.02383)	(1354	GH 2	25AP1967	0.00518)	(1403	CA 2	10MY1967	C.03923)
(1404	MD 2	10MY1967	0.03811)	(1405	ES 2	12MY1967	C.00845)	(1407	SH 2	14MY1967	C.CC597)

Meridion circulare var. *constrictum* (Ralfs) V. H.

Meridion constrictum Ralfs, Annals Mag. Nat. Hist., 12:458, pl. 18, fig. 2. 1843.
Meridion circulare var. *constrictum* (Ralfs) Van Heurck, Syn. Diat. Belgique, p. 161, pl. 51, figs. 14-15. 1885.

345 MRCIRCVC TOT NO OF STATIONS 6

(1550	MR 1	5OC1967	0.01239)	(1428	MU 2	29MY1967	0.00301)	(1350	BH 2	19AP1967	C.CC220)
(1354	GH 2	25AP1967	0.01036)	(1404	MD 2	10MY1967	0.02541)	(1405	ES 2	12MY1967	C.CC645)

Genus *Navicula* Bory
Bory, Encyclop. Methodl., p. 562. 1824.

Navicula is by far the largest of the diatom genera occurring in fresh water. Its members occupy a diversity of habits ranging from terrestrial to occurrences in the plankton of large lakes. Probably none of the freshwater species is euplanktonic although a number are successful facultative planktonts and are regularly noted in plankton collections, even those from offshore areas.

Navicula abiskoensis Hust.

Navicula abiskoensis Hustedt, Arch. Hydrobiol., 39:118, fig. 36. 1942.

Coll: ANSP Schulze A70.

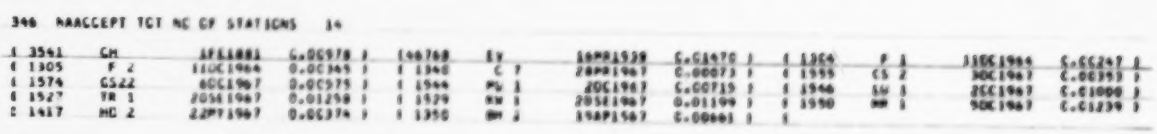
Navicula aboensis (Cleve) Hust.

Navicula torneensis var. *aboensis* Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):33, pl. 2, fig. 7. 1891.
Navicula aboensis (Cleve) Hustedt, Bot. Not., 105:407, figs. 131-132. 1952.

Coll: 1800.

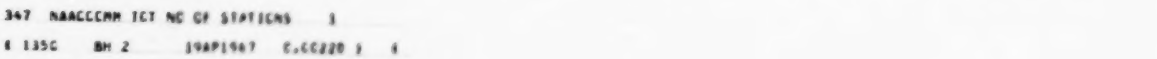
Navicula acceptata Hust.

Navicula acceptata Hustedt, Arch. Hydrobiol., 43:398, pl. 38, figs. 66-67. 1950.



Navicula accomoda Hust.

Navicula accomoda Hustedt, Arch. Hydrobiol., 43:446, pl. 39, figs. 17-18. 1950.



Navicula ambigua Ehr.

Navicula ambigua Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:129, pl. 2, fig. II(9). 1843.

Navicula amphibola var. *perrieri* Per. and Hérib.

Navicula amphibola var. *perrieri* Peragallo and Héribaud *in*: Héribaud, Foss. Diat. Auvergne, Pt. 1, p. 25, pl. 7, fig. 11. 1902.

Coll: ANSP Schulze A70.

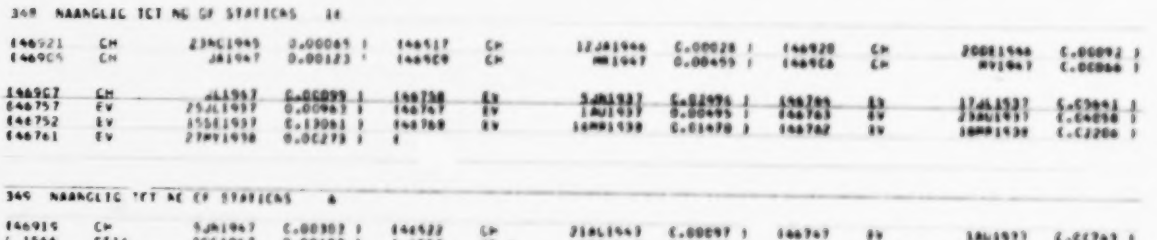
Navicula amphiceros Kütz.

Navicula amphiceros Kützing, Bacill., p. 95, pl. 3, fig. 39. 1844.

Coll: 1056.

Navicula anglica Ralfs

Navicula anglica Ralfs *in*: Pritchard, Hist. Infus., 4th ed., p. 900. 1861.



Navicula anglica var. *signata* Hust.

Navicula anglica var. *signata* Hustedt, Ber. Deutsch Bot. Ges., 61(5):287, pl. 8, fig. 26. 1943.

350 NAVANGLVS TEST NC CP STATIONS 19

146913	CM	20FE1946	0.00569	)	146758	EV	5JN1937	0.00357	)	146747	EV	18N1937	0.00248	)
146760	EV	22SE1937	0.00492	)	146767	EV	27DC1937	0.00387	)	(1206	C* 1	30AL1964	0.00193	)
(1305	P 1	11DC1584	0.00247	)	(1288	GS12	12MY1967	0.00403	)	(1565	GS13	90C1967	0.00578	)
(1569	GS17	9DC1967	0.00149	)	(1546	LU 1	20C1967	0.00500	)	(1521	SP 1	18SE1967	0.00577	)
(1528	MD 1	20SE1967	0.00969	)	(1527	TR 1	20SE1967	0.00629	)	(1528	SB 1	2CSE1967	0.01444	)
(1565	MS 1	2CC1967	0.01351	)	(1417	MC 2	22MY1967	0.00374	)	(1403	CA 2	10MY1967	0.01308	)
(1423	NA 2	25MY1967	0.00428	)	(										

Navicula anglica var. *subsalsa* (Grun.) Cleve

Navicula timida var. *subsalsa* Grunow, Verh. Zool.-Bot. Ges. Wien, 10:537, pl. 4, fig. 43b. 1860.
Navicula anglica var. *subsalsa* (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):22. 1895.

351 NAVANGLVA TEST NC CP STATIONS 2

146758	EV	5JN1937	0.00357	)	146757	EV	25JL1937	0.00481	)	(					

Navicula angusta Grun.

Navicula angusta Grunow, Verh. Zool.-Bot. Ges. Wien, 10:528, pl. 5, fig. 19. 1860.

492 NASPECC1 TEST NC CP STATIONS 5

146778	EV	9JL1937	0.00396	)	146766	EV	14DE1938	0.01584	)	(1530	E 2	24SE1967	0.00273	)	
(1594	C* 2	13MY1967	0.00172	)	(										

Navicula aurora Sov.

Navicula aurora Sovereign, Trans. American Micr. Soc., 77(2):120, pl. 3, figs. 29-31. 1958.

352 NAAURORA TEST NC CP STATIONS 13

146920	CM	20DE1946	0.00631	)	146758	EV	5JN1937	0.00357	)	146714	EV	11JN1937	0.00238	)	
146764	EV	17JL1937	0.00000	)	146757	EV	25JL1937	0.00963	)	146747	EV	18N1937	0.00248	)	
146780	EV	22SE1937	0.00492	)	146762	EV	18MY1938	0.02208	)	146758	EV	27AP1938	0.00168	)	
(1627	LU 2	20MY1967	0.01211	)	(1460	SB 2	6MY1967	0.00596	)	(1484	MC 2	10MY1967	0.01270	)	
(1485	ES 2	12MY1967	0.00845	)	(										

Navicula bacillum Ehr.

Navicula bacillum Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:418, pl. 4(5), fig. 8. 1843.

353 NABACILL TEST NC CP STATIONS 8

146758	EV	5JN1937	0.00357	)	146757	EV	25JL1937	0.00481	)	146747	EV	18N1937	0.00495	)	
146750	EV	24SE1937	0.00471	)	(1392	GS16	12MY1967	0.00388	)	(1565	GS13	90C1967	0.01014	)	

Navicula baloanica Hust.

Navicula baloanica Hustedt, Arch. Hydrobiol., 40:928, pl. 40, figs. 12-15. 1945.

354 NABALCAN TEST NC CP STATIONS 29

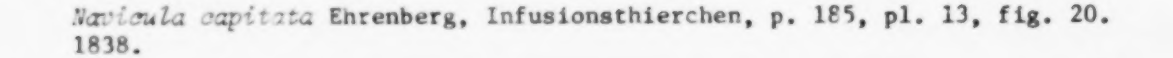
146910	CM	CC1965	0.00218	)	146921	CM	23NO1965	0.00129	)	146915	CM	2CF81946	0.00569	)	
146914	CM	15AP1966	0.00107	)	146924	CM	10MY1966	0.00071	)	146923	CM	22NC1966	0.00637	)	
146920	CM	20DE1966	0.00062	)	146909	CM	MR1967	0.00911	)	146916	CM	4MY1967	0.00834	)	
146926	CM	MY1967	0.00088	)	146917	CM	JL1967	0.00168	)	146922	CM	21AU1967	0.00242	)	
146758	EV	5JN1937	0.24240	)	146763	EV	28JN1937	0.00428	)	146770	EV	9JL1937	0.00598	)	
146784	EV	17JL1937	0.13055	)	146757	EV	25JL1937	0.02889	)	146747	EV	18N1937	0.01723	)	
146783	EV	23AU1937	0.12175	)	146765	EV	30AU1937	0.01115	)	146752	EV	15SE1937	0.04354	)	
146780	EV	22SE1937	0.00985	)	146750	EV	24SE1937	0.02028	)	146787	EV	27DC1937	0.01100	)	
146769	EV	12MY1938	0.01214	)	146762	EV	18MY1938	0.13233	)	146761	EV	27MY1938	0.00273	)	
146766	EV	14DE1938	0.01584	)	(1566	PL 1	2CC1967	0.00238	)	(					

Navicula bryophila Peters.

Navicula bryophila Petersen, Bot. Iceland, Vol. 2, p. 388, fig. 13. 1928.

Navicula capitata Ehr.

Navicula capitata Ehrenberg, Infusionsthierchen, p. 185, pl. 13, fig. 20. 1838.



Navicula capitata var. *hungarica* (Grun.) Ross

Navicula hungarica Grunow, Verh. Zool.-Bot. Ges. Wien, 10:539, pl. 3, fig. 30. 1860.
Navicula capitata var. *hungarica* (Grun.) Ross, Natl. Mus. Canada Bull., 97(2):192. 1947.

Navicula capitata var. *luneburgensis* (Grun.) Patr.

Navicula hungarica var. *luneburgensis* Grunow *in*: Mojsisovics and Neumayer, Beitr. Palöont. Österreich-Ungarns, Vol. 2, pt. 4, p. 156, pl. 30, figs. 43-44. 1882.
Navicula capitata var. *luneburgensis* (Grun.) Patrick *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:537, pl. 52, fig. 4. 1966.

Navicula capsa Hohn

Navicula capsa Hohn, Trans. American Micr. Soc., 80(2):161, pl. 1, fig. 20. 1961.

Navicula caroliniana Patr.

Navicula caroliniana Patrick, Proc. Acad. Nat. Sci. Philadelphia, 111:107, pl. 7, fig. 11. 1959.

Coll: 1741.

Navicula certa Hust.

Navicula certa Hustedt, Arch. Hydrobiol., 40(4):924, pl. 42, figs. 2-3. 1945.

359 NACERTA TCT NO OF STATIONS 6

(1545	ML 1	20C1967	0.00676)	(1550	MR 1	5DC1967	0.01239)	(1426	PS 2	29MY1967	C.01050)
(1351	MI 2	21AP1967	0.00310)	(1350	BM 2	19AP1967	0.00220)	(1404	MQ 2	10MY1967	C.01270)

Navicula clementis Grun.

Navicula clementis Grunow *in*: Mojsisovics and Neumayer, Beitr. Paläont. Osterreich-Ungarns, Vol. 2, pt. 4, p. 144, pl. 30, fig. 52. 1882.

361 NACLOIDC TCT NO OF STATIONS 2

(1388	GS12	12MY1967	0.00603)	(1527	TR 1	20SE1967	0.00629)	(					

Navicula clementis var. *linearis* Bander

Navicula clementis var. *linearis* Bander *ex* Hustedt *in*: A. Schmidt, Atlas Diat., pl. 403, fig. 43. 1936.

36C NACLEPVL TCT NO OF STATIONS 2

(1550	MR 1	5DC1967	0.01235)	(1428	MQ 2	29MY1967	C.00301)	(					

Navicula clementis var. *quadristigmata* Mang.

Navicula clementis var. *quadristigmata* Manguin, Rev. Algol., Nouv. Sér., 5(4):274, pl. 2 (J. pl. 27), fig. 2. 1961.

456 NASCLEME TCT NO OF STATIONS 2

146920	CM	20DE1946	0.00062)	146767	EV	27DC1937	0.00387)	(					

Navicula cocconeiformis Greg.

Navicula cocconeiformis Gregory *ex* Greville, Annals Mag. Nat. Hist., Ser. 2, 15:256, pl. 9, fig. 6. 1855.

362 NACOCCCN TCT NO OF STATIONS 5

(1545	GS13	5DC1967	C.02028)	(1545	MQ 1	4DC1967	0.01370)	(1550	MR 1	5DC1967	C.01239)
(1353	SG 1	6DC1967	0.00734)	(1407	SM 2	14MY1967	0.00597)	(					

Navicula confervacea (Kütz.) Grun.

Diadesmis confervacea Kützing, Bacill., p. 109, pl. 30, fig. 8. 1844.
Navicula confervacea (Kütz.) Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 14, fig. 36. 1880.

362 NACONFER TCT NO OF STATIONS 2

(1550	MR 1	5DC1967	0.04956)	(1350	BM 2	15AP1967	0.00441)	(					

Navicula costulata Grun.

Navicula costulata Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):27. 1880.

364 NACOSTUL TCT NC OF STATIONS 30

(46921	CH	23NO1945	0.0C517)	(46517	CH	12JA1946	0.00055)	(46924	CH	10MY1946	C.CC635)
(46923	CH	22NO1946	0.0C874)	(46520	CH	20DE1946	C.00062)	(46909	CH	MR1947	C.0C911)
(46916	CH	4MY1947	0.0C238)	(46519	CH	5JN1947	C.C0607)	(46907	CH	JL1947	0.00148)
(46922	CH	21AU1947	0.00582)	(46758	EV	5JN1937	0.05349)	(46743	EV	20JN1937	C.C1285)
(46745	EV	3JL1937	0.02090)	(46764	EV	17JL1537	0.01612)	(46757	EV	JL1937	C.02407)
(46747	EV	1AU1937	0.02723)	(46763	EV	23AU1537	C.10146)	(46752	EV	15SE1937	C.08707)
(46750	EV	24SE1937	0.C1885)	(46744	EV	6CC1937	C.00488)	(46748	EV	13OC1937	C.C427C)
(46767	EV	27OC1937	0.00774)	(46749	EV	12MR1938	C.C2427)	(46768	EV	16MR1538	C.C5880)
(46762	EV	18MR1938	0.C6617)	(46751	EV	30MR1538	0.01117)	(46756	EV	27AP1538	0.0C168)
(46759	EV	19MY1938	0.01013)	(46761	EV	27MY1538	C.00545)	(1274	D 1	17SE1964	C.0C469)

Navicula cryptocephala Kütz.

Navicula cryptocephala Kützing, Bacill., p. 95, pl. 3, figs. 20, 26. 1844.

365 NACRYPTC TCT NC OF STATIONS 35

(46915	CH	2CFE1946	0.00565)	(46506	CH	MY1947	0.00066)	(46752	EV	15SE1937	C.C2177)
(46744	EV	6OC1937	0.0C975)	(1240	D 6	10JN1964	C.00307)	(1241	E 2	13JN1964	0.00148)
(1533	A 4	19SE1967	0.0C464)	(1387	GS11	12MY1967	C.00792)	(1389	GS13	12MY1967	C.0C516)
(1392	GS16	12MY1967	0.0C308)	(1394	GS18	13MY1967	C.00172)	(1397	GS21	13MY1967	C.CC196)
(1558	GS 5	4OC1967	C.00396)	(1562	GS10	5CC1967	C.00247)	(1565	GS13	5OC1967	C.C1521)
(1571	GS19	6OC1967	C.0C059)	(1575	GS28	6CC1967	C.00129)	(1546	LU 1	2CC1967	C.CC500)
(1522	BH 1	18SE1967	0.0C365)	(1527	TR 1	20SE1967	0.00629)	(1530	MR 1	24SE1967	C.1E002)
(1531	GH 1	25SE1967	0.01691)	(1545	WL 1	2CC1967	C.03379)	(1550	MR 1	5CC1967	C.C9912)
(1553	SG 1	6OC1967	0.00734)	(1427	LU 2	29MY1967	0.01211)	(1417	MO 2	22MY1967	C.0C748)
(1350	BH 2	15AP1967	0.07048)	(14C1	MO 2	6MY1967	C.01764)	(14C2	TR 2	6MY1967	C.CC541)
(1400	SB 2	6MY1967	0.00596)	(1352	KB 2	21AP1967	0.00859)	(1354	GH 2	25AP1967	0.00173)
(1404	MO 2	10MY1967	0.C127C)	(14C7	SM 2	14MY1567	0.00597)	(			

Navicula cryptocephala var. *intermedia* Grun.

Navicula cryptocephala var. *intermedia* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 8, fig. 10. 1880.

366 NACRYPVI TCT NC OF STATIONS 27

(46762	EV	18MR1938	0.02206)	(1534	A 6	19SE1967	C.00620)	(1543	E 5	10OC1967	C.CC718)
(1383	GS 7	10MY1967	0.00267)	(1388	GS12	12MY1967	C.00603)	(1571	GS19	6OC1967	C.0C059)
(1573	GS21	6CC1967	0.00112)	(1574	GS22	6OC1967	C.00575)	(1544	MU 1	2CC1967	0.0C477)
(1547	MS 1	2OC1967	0.00798)	(1522	BH 1	18SE1967	C.03465)	(1526	MO 1	2CSE1967	C.CC569)
(1545	WL 1	2OC1967	0.03379)	(1551	ES 1	5CC1967	0.00799)	(1552	SM 1	6CC1967	C.CC660)
(1550	MR 1	5OC1967	0.35931)	(1426	MS 2	29MY1967	C.05249)	(1351	MI 2	21AF1967	C.0C621)
(1417	MO 2	22MY1967	C.01122)	(1418	SM 2	22MY1967	0.01555)	(1350	BH 2	19AP1967	C.C3524)
(1401	MO 2	6MY1967	0.01176)	(1402	TR 2	6MY1967	C.02707)	(1400	SB 2	6MY1967	C.04765)
(1354	GH 2	25AP1967	0.0C173)	(1407	SM 2	14MY1967	C.01791)	(14C6	GB 2	13MY1967	C.C1078)

Navicula cryptocephala var. *lancettula* (Schum.) Grun.

Navicula lancettula Schumann, Schrift. K. Phys.-Ökonom. Ges. Königsberg, 5:16, pl. 2, fig. 34. 1864.
Navicula cryptocephala var. *lancettula* (Schum.) Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 8, fig. 11. 1880.

367 NACRYPVI TCT NC OF STATIONS 1

(1279	E 1	16SE1964	0.0C393)	(

Navicula cryptocephala var. *veneta* (Kütz.) Rabh.

Navicula veneta Kützing, Bacill., p. 95, pl. 30, fig. 76. 1844.
Navicula cryptocephala var. *veneta* (Kütz.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 198. 1864.

368 NACRYPVV TOT NO OF STATIONS 27

(46919	CH	5JN1947	0.00152)	(46750	EV	24SE1937	C.00471)	(46748	EV	13CC1937	C.02135)
(1344	C 3	25AP1967	C.00165)	(1346	C 7	21AP1967	C.00134)	(1348	E 5	23AP1967	C.00137)
(1382	GS 6	10MY1967	0.00278)	(1554	GS 1	3CC1967	C.00356)	(1558	GS 5	4CC1967	C.CC396)
(1565	GS13	5OC1967	0.00507)	(1574	GS22	6CC1967	0.04315)	(1544	PU 1	2CC1967	C.CC238)
(1546	LU 1	20C1967	0.04502)	(1521	SM 1	18SE1967	0.00577)	(1526	PO 1	20SE1967	0.04551)
(1527	TR 1	20SE1967	0.22013)	(1528	SB 1	20SE1967	0.01444)	(1529	KW 1	20SE1967	C.08394)
(1530	FR 1	24SE1967	0.01000)	(1545	WL 1	20C1967	C.21623)	(1550	PR 1	5OC1967	C.16107)
(1351	MI 2	21AP1967	0.00310)	(1350	BH 2	19AP1967	C.07929)	(1401	MO 2	6MY1967	C.01176)
(1400	SB 2	6MY1967	0.01191)	(1352	KW 2	21AP1967	0.00859)	(1407	SM 2	14MY1967	C.C2986)

Navicula cuspidata (Kütz.) Kütz.

Frustulia cuspidata Kützing, Linnaea, 8:549, pl. 4, fig. 26. 1833.
Navicula cuspidata (Kütz.) Kützing, Bacill., p. 94, pl. 3, figs. 24, 37. 1844.

369 NACUSPID TOT NO OF STATIONS 6

(1287	F 3	15SE1964	0.00500)	(1369	A 4	4MY1967	C.00373)	(1572	GS20	6DC1967	C.CC090)
(1520	MO 1	18SE1967	0.00471)	(1417	MO 2	22MY1967	0.00374)	(1406	GB 2	13MY1967	C.00809)

Navicula cuspidata var. *major* Meist.

Navicula cuspidata var. *major* Meister, Beitr. Kryptog.-Fl. Schweiz, 4(1):134, pl. 20, fig. 10. 1912.

371 NACUSPVM TOT NO OF STATIONS 1

(1549	PO 1	4CC1967	0.01370)	(

Navicula decussis Østr.

Navicula decussis Østrup, Danske Diat., p. 77, pl. 2, fig. 50. 1910.

372 NADECUSS TOT NO OF STATIONS 62

(46910	CH	OC1945	0.00109)	(46521	CH	23NO1945	C.00065)	(46917	CH	12JA1946	C.CCC55)
(46915	CH	20FE1946	0.01138)	(46514	CH	19AP1946	C.00320)	(46924	CH	10MY1946	C.00141)
(46923	CH	22NO1946	0.00874)	(46520	CH	20DE1946	C.00062)	(46909	CH	MR1947	C.C1821)
(46916	CH	4MY1947	0.00102)	(46506	CH	MY1947	0.00133)	(46919	CH	5JN1947	C.00303)
(46907	CH	JL1947	C.00099)	(46522	CH	21AU1947	C.00145)	(46758	EV	5JN1937	C.03923)
(46743	EV	20JN1937	0.00428)	(46770	EV	9JL1937	C.01193)	(46764	EV	17JL1937	C.02417)
(46757	EV	25JL1937	0.03370)	(46747	EV	1AU1937	C.00990)	(46763	EV	23AU1937	C.12175)
(46765	EV	30AU1937	0.00558)	(46752	EV	15SE1937	0.06354)	(46760	EV	22SE1937	C.00492)
(46750	EV	24SE1937	0.01885)	(46744	EV	6OC1937	C.00488)	(46748	EV	13OC1937	C.02135)
(46745	EV	12MR1938	0.01214)	(46768	EV	16MR1938	0.04410)	(46751	EV	30MR1938	C.01117)
(46759	EV	19MY1938	0.00338)	(46761	EV	27MY1938	0.00545)	(1240	D 6	10JN1964	C.OC153)
(1264	C 1	10AU1964	0.00193)	(1341	A 3	19AP1967	0.00325)	(1504	A 3	28AU1967	C.OC247)
(1540	C 5	4OC1967	0.00496)	(1541	E 2	11OC1967	C.00532)	(1565	GS13	5CC1967	C.OC507)
(1574	GS22	6OC1967	0.00288)	(1544	MU 1	2CC1967	C.00238)	(1547	PS 1	2OC1967	C.01597)
(1546	LU 1	20C1967	0.03001)	(1520	MO 1	18SE1967	0.00471)	(1521	SM 1	18SE1967	C.00577)
(1522	BH 1	18SE1967	0.02735)	(1527	TR 1	20SE1967	0.08176)	(1528	SB 1	20SE1967	C.04332)
(1530	FR 1	24SE1967	0.01000)	(1545	WL 1	20C1967	0.16893)	(1550	PR 1	5OC1967	0.04956)
(1428	MU 2	25MY1967	0.00603)	(1426	MS 2	29MY1967	0.03150)	(1427	LU 2	29MY1967	C.03632)
(1417	MO 2	22MY1967	0.01122)	(1350	BH 2	19AP1967	0.08590)	(1399	PW 2	5MY1967	C.OC68C)
(1402	TR 2	6MY1967	0.00541)	(1352	KW 2	21AP1967	0.00859)	(1404	PO 2	10MY1967	C.01270)
(1407	SM 2	14MY1967	0.00597)	(1422	GA 2	23MY1967	0.00511)	(			

Navicula diluviana Krasske

Navicula diluviana Krasske, Zeitschr. Geschiebforsh., 9(2):90, pl. 2, figs. 2a-b, pl. 3. 1933.

374 NADILUVI TOT NO OF STATIONS 1

(1388	GS12	12MY1967	0.00603)	(

Navicula elginensis (Greg.) Ralfs

Pinnularia elginensis Gregory, Quart. J. Micr. Sci., 4:9, pl. 1, fig. 33, 1856.
Navicula elginensis (Greg.) Ralfs *in*: Pritchard, Hist. Infusoria, 4th ed., p. 902. 1861.

375 NAELGINE TOT NO OF STATIONS 1

(1350	BH 2	19AP1967	0.00220)	(

Navicula exigua var. *capitata* Patr.

Navicula exigua var. *capitata* Patrick, Farlowia, 2(2):179, pl. 1, fig. 8. 1945.

377 NAEXIGVC TOT NO OF STATIONS 3

(1565	GS13	5OC1967	0.00507)	(1571	GS14	6OC1967	0.00059)	(1527	TR 1	20SE1967	0.00629)

Navicula exiguaformis Hust.

Navicula exiguaformis Hustedt, Arch. Hydrobiol., 40(4):929, pl. 42, figs. 21-22. 1945.

376 NAEXIGUI TOT NO OF STATIONS 26

(46917	CH	12JA1946	0.00028)	(46524	CH	10MY1946	0.00071)	(46923	CH	22NO1946	0.00219)
(46906	CH	MY1947	0.00066)	(46758	EV	5JN1937	0.11768)	(46743	EV	20JN1937	0.00428)
(46770	EV	9JL1937	0.00596)	(46764	EV	17JL1937	0.21757)	(46757	EV	25JL1937	0.00963)
(46747	EV	1AU1937	0.01485)	(46763	EV	23AU1937	0.16234)	(46752	EV	15SE1937	0.15237)
(46750	EV	24SE1937	0.01885)	(46748	EV	13OC1937	0.10675)	(46767	EV	27OC1937	0.01547)
(46768	EV	16MR1938	0.11760)	(46762	EV	18MR1938	0.04411)	(46751	EV	30MR1938	0.02233)
(1279	E 1	16SE1964	0.00393)	(1565	GS13	5OC1967	0.03549)	(1546	LU 1	2DC1967	0.03561)
(1522	BH 1	18SE1967	0.00182)	(1523	RA 1	19SE1967	0.00923)	(1527	TR 1	20SE1967	0.00629)
(1545	WL 1	2OC1967	0.01351)	(1350	BH 2	19AP1967	0.00220)	(			

Navicula explanata Hust.

Navicula explanata Hustedt, Schweizerische Zeitschr. Hydrobiol., 11:207, fig. 7-8. 1948.

378 NAEXPLAN TOT NO OF STATIONS 13

(46758	EV	5JN1937	0.00713)	(46768	EV	16MR1938	0.01470)	(46762	EV	18MR1938	0.04411)
(46761	EV	27MY1938	0.00273)	(1386	GS10	12MY1967	0.00287)	(1388	GS12	12MY1967	0.01810)
(1389	GS13	12MY1967	0.06258)	(1394	GS18	13MY1967	0.00172)	(1565	GS13	5OC1967	0.01014)
(1574	GS22	6OC1967	0.00575)	(1550	MR 1	5OC1967	0.01239)	(1354	CH 2	25AP1967	0.00173)
(1404	PG 2	10MY1967	0.01270)	(							

Navicula farta Hust.

Navicula farta Hustedt, Bot. Not., 105:408. 1952.

375 NAFARTA TOT NO OF STATIONS 1

(1565	GS13	5OC1967	0.28395)	(	

Navicula fracta Hust.

Navicula fracta Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschlands, 7(2)1: 127, fig. 1259. 1961.

380 NAFRALTC TOT NO OF STATIONS 4

(46763	EV	23AU1937	0.02029)	(1300	E 3	13OC1964	0.00358)	(1394	GS18	13MY1967	0.00172)
(1560	GS 8	4OC1967	0.00472)	(1565	GS13	5OC1967	0.00507)	(1422	GA 2	23MY1967	0.00511)

Navicula gastriformis Hust.

Navicula gastriformis Hustedt *in*: A. Schmidt, Atlas Diat., pl. 398, figs. 17-19. 1934.

381 NAGASTRI TOT NO OF STATIONS 1

(1396	GS20	13MY1967	0.00074)	(	

Navicula gastrum (Ehr.) Kütz.

Pinnularia gastrum Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841.421, pl. 3(7), fig. 23. 1843.
Navicula gastrum (Ehr.) Kützing, Bacill., p. 94, pl. 28, fig. 56. 1844.

382 NAGASTRU TCT NC OF STATIONS 23

(46914	CH		19AP1946	0.00107)	(46920	CH		20DE1946	0.00031)	(46747	EV		1AU1937	C.CC495)
(1244	F 1		11JN1964	0.00110)	(1257	E 3		14JL1964	0.00239)	(1272	C* 1		10SE1964	0.00410)
(1341	A 3		19AP1967	0.00108)	(1304	A 3		28AU1967	C.00247)	(1388	GS12		12MY1967	C.00603)
(1354	GS 1		30C1967	0.00356)	(1367	GS15		50C1967	0.00159)	(1370	GS18		50C1967	C.00992)
(1375	GS28		6CC1967	0.00129)	(1520	MO 1		18SE1967	C.CC471)	(1522	BH 1		18SE1967	C.00547)
(1527	TR 1		20SE1967	0.01258)	(1530	FR 1		24SE1967	C.01090)	(1545	WL 1		20C1967	C.00676)
(1550	MR 1		5CC1967	0.02478)	(1350	BH 2		19AP1967	C.01542)	(1402	TR 2		6MY1967	C.00541)
(1400	SH 2		6MY1967	0.00596)	(1407	SH 2		14MY1967	0.00597)	(				

Navicula gastrum var. *signata* Hust.

Navicula gastrum var. *signata* Hustedt *in*: A. Schmidt, Atlas Diat., pl. 403, figs. 27-28. 1936.

383 NAGASTVS TCT NO OF STATIONS 21

(60973	CH		1876	0.04724)	(3546	CH		11MY1875	C.00466)	(46921	CH		23NC1945	C.00065)
(46917	CH		12JA1946	0.00055)	(46915	CH		20FE1946	0.01138)	(46914	CH		19AP1946	0.00107)
(46905	CH		JA1947	0.CC490)	(46516	CH		4MY1547	C.00034)	(46919	CH		5JN1947	C.CC303)
(46784	EV		17JL1937	0.00806)	(46747	EV		1AU1937	0.00743)	(46788	EV		16MR1938	C.C1470)
(46762	EV		18MR1938	0.04411)	(46761	EV		27MY1538	C.00273)	(1279	E 1		16SE1564	C.CC393)
(1565	GS13		50C1967	0.04563)	(1574	GS22		60C1967	0.00288)	(1520	MO 1		18SE1967	C.00471)
(1526	MO 1		20SE1967	0.01138)	(1527	TR 1		20SE1967	C.05031)	(1417	MO 2		22MY1967	C.00374)

Navicula globosa Meist.

Navicula globosa Meister, Ber. Schweizerische Bot. Ges., 44:89, fig. 8. 1934.

384 NAGLOBCG TCT NC OF STATIONS 4

(1527	TR 1		20SE1967	0.00629)	(1350	BH 2		19AP1967	C.00220)	(1394	GH 2		25AP1967	C.CC173)
(1404	MO 2		10MY1967	0.03811)	(									

Navicula gottlandica Grun.

Navicula gottlandica Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 8. fig. 8. 1880.

385 NAGOTTLA TCT NO OF STATIONS 2

(1565	GS13		5CC1967	0.07C99)	(1404	MO 2		10MY1967	C.01270)	(				

Navicula graciloides A. Mayer

Navicula graciloides A. Mayer, Kryptog. Forsch., 1:203, pl. 7, fig. 60. 1919.

386 NAGRACIL TCT NC CF STATIONS 15

(46763	EV		23AU1937	C.02029)	(1343	A 6		19AP1967	C.00069)	(1354	GS 1		30C1967	C.CC712)
(1569	GS17		5CC1967	0.00149)	(1571	GS19		60C1967	C.00059)	(1574	GS22		60C1967	C.12944)
(1544	MU 1		2CC1967	0.00238)	(1546	LU 1		20C1967	0.00500)	(1526	MO 1		20SE1967	C.CC569)
(1527	TR 1		20SE1967	0.01258)	(1529	KN 1		20SE1967	0.01199)	(1549	MO 1		4CC1967	C.C1370)
(1350	BH 2		19AP1967	0.00661)	(1404	MO 2		10MY1967	C.05081)	(1407	SH 2		14MY1967	C.CC597)

Navicula gregaria Donk.

Navicula gregaria Donkin, Quart. J. Micr. Sci., New Ser., 1:10, pl. 1, fig. 10. 1861.

387 NAGREGAR TCT NC CF STATIONS 19

(1236	C* 1		8JN1964	0.00175)	(1264	C* 1		10AU1964	0.00193)	(1345	C 5		25AP1967	C.CC195)
(1368	A 3		4MY1967	0.00314)	(1542	E 3		11OC1967	C.00509)	(1546	LU 1		20C1967	C.03001)
(1521	SH 1		18SE1967	0.02308)	(1522	BH 1		18SE1967	0.00365)	(1527	TR 1		2CSE1967	C.C1258)
(1531	GH 1		25SE1967	0.00845)	(1545	WL 1		20C1967	0.13514)	(1550	MR 1		50C1967	C.02717)
(1426	MS 2		29MY1967	C.06299)	(1427	LU 2		29MY1967	C.01211)	(1417	MO 2		22MY1967	C.03365)
(1418	SH 2		22MY1567	0.03110)	(1350	BH 2		19AP1967	C.11013)	(1394	GH 2		25AP1967	C.CC345)
(1429	WL 2		29MY1967	0.01062)	(									

Navicula grimmei Krasske

Navicula grimmei Krasske, Abh. Ber. Ver. Naturk. Cassel, 56:45, pl. 1, fig. 14. 1925.

388 NAGRIPME TCT NC CF STATICNS 5

(1567	GS15	5CC1967	C.0C159)	(1550	MR 1	5CC1967	0.01239)	(1426	PS 2	29MY1967	C.C4196)
(1350	BH 2	19AP1967	0.01542)	(1404	MC 2	10MY1967	0.01270)	(			

Navicula hambergii Hust.

Navicula hambergii Hustedt *in*: Hamberg, Naturw. Untersuch. Sarekgebiet Schwedisch-Lappland, Bd. 3, Bot., p. 562, pl. 17, fig. 2. 1924.

Coll: ANSP 46763a.

Navicula hasta Pant.

Navicula hasta Pantocsek, Beitr. Kenntn. Foss. Bacill. Ungarns, Theil 3, p. 69, Beitr. 3, pl. 5, fig. 74. 1905.

Coll: 1813.

Navicula heufleri Grun.

Navicula heufleri Grunow, Verh. Zool.-Bot. Ges. Wien, 10:528, pl. 3, figs. 32a-b. 1860.

389 NAHEUFLE TCT NC CF STATICNS 1

(1350	BH 2	15AP1967	0.00661)	(									

Navicula heufleri var. *leptocephala* (Bréb.) Patr.

Navicula leptocephala de Brébisson *ex* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 7, fig. 16. 1880.
Navicula cincta var. *leptocephala* (Bréb.) Van Heurck, Syn. Diat. Belgique, p. 82. 1885.
Navicula heufleri var. *leptocephala* (Bréb.) Patrick *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:515, pl. 49, fig. 7. 1966.

390 NAHEUFVL TCT NC CF STATICNS 2

(1522	BH 1	18SE1967	0.00182)	(1417	MC 2	22MY1967	0.00374)	(					

Navicula imbricata Bock

Navicula imbricata Bock, Nova Hedw., 5:228, pl. 3, figs. 150-160. 1963.

391 NAIMBRIC TCT NC CF STATIONS 1

146756	EV	27AP1538	0.0C168)	(									

Navicula integra (Wm. Smith) Ralfs

Pinnularia integra Wm. Smith, Syn. British Diat., Vol. 2, p. 96. 1856.
Navicula integra (Wm. Smith) Ralfs *in*: Pritchard, Hist. Infusoria, 4th ed., p. 895. 1861.

393 NAINTEGR TCT NC CF STATICNS 7

(1236	C' 1	8JN1964	0.0C350)	(1342	A 4	19AP1967	0.00361)	(1504	A 3	28AU1967	C.0C247)
(1559	GS 7	4OC1967	0.00350)	(1522	BH 1	18SE1967	0.00182)	(1417	MC 2	22MY1967	C.0C374)
(1350	BH 2	19AP1967	0.03304)	(							

Navicula jaernefeltii Hust.

Navicula jaernefeltii Hustedt, Arch. Hydrobiol., 39:111. 1942.

394 NAJAERNE TCT NC OF STATICNS 7

(1395	GS19	13MY1967	0.00117)	(1560	GS 8	4OC1967	C.00472)	(1565	GS13	5OC1967	C.02028)
(1569	GS17	5OC1967	0.00149)	(1574	GS22	6OC1967	0.00288)	(1575	GS28	6OC1967	C.00129)
(1551	ES 1	5OC1967	0.00795)	(							

Navicula lacustris Greg.

Navicula lacustris Gregory, Quart. J. Micr. Sci., 4:6, pl. 1, fig. 23. 1856.

396 NALACUST TCT NO OF STATIONS 16

(3541	CH	1FE1881	0.01956)	(46514	CH	19AP1946	0.00107)	(46920	CH	20DE1946	C.CC031)
(46919	CH	5JN1947	0.00152)	(46507	CH	JL1947	C.00049)	(46764	EV	17JL1937	C.00806)
(46747	EV	1AU1937	0.00743)	(46769	EV	7SE1937	0.02171)	(46760	EV	22SE1937	C.CC492)
(46767	EV	27OC1937	0.00387)	(1258	F 1	6JL1964	0.00236)	(1352	GS16	12MY1967	C.00308)
(1526	MO 1	20SE1967	0.00569)	(1545	WL 1	2OC1967	C.06081)	(1427	LU 2	29MY1967	C.01211)
(1354	GH 2	25AP1967	0.00173)	(							

485 NASPECCK TCT NO OF STATIONS 1

(1254	D 2	15JL1964	0.00192)	(

Navicula lanceolata (Agardh) Kütz.

Frustulia lanceolata Agardh, Flora, 10:626. 1827.
Navicula lanceolata (Agardh) KÜtzing, Bacill., p. 94, pl. 28, fig. 38. 1844.

395 NALANCEC TCT NO OF STATIONS 67

(60973	CH	1876	0.02362)	(46521	CH	23ND1945	C.00065)	(46915	CH	20FE1946	C.01138)
(46914	CH	19AP1946	0.00107)	(46520	CH	20DE1946	0,00021)	(46905	CH	JA1947	C.00123)
(46906	CH	MY1947	0.00199)	(46507	CH	JL1947	C.00049)	(46922	CH	21AU1947	C.00048)
(46758	EV	5JN1937	0.00357)	(46743	EV	20JN1937	C.00428)	(46764	EV	17JL1937	C.04029)
(46757	EV	25JL1937	0.12999)	(46747	EV	1AU1937	0.03218)	(46763	EV	23AU1937	C.18263)
(46765	EV	30AU1937	0.01115)	(46752	EV	15SE1937	0.15237)	(46760	EV	22SE1937	C.00492)
(46750	EV	24SE1937	0.01414)	(46744	EV	6DC1937	C.02439)	(46748	EV	13OC1937	C.04270)
(46767	EV	27OC1937	0.01160)	(46749	EV	12MR1938	0.01214)	(46768	EV	16MR1938	C.04410)
(46762	EV	18MR1938	0.04411)	(1232	E 5	16MY1964	0.00174)	(1285	F 1	15SE1964	C.01165)
(1305	F 2	11OC1964	0.00173)	(1341	A 3	19AP1967	C.00108)	(1375	E 3	7MY1967	C.00241)
(1453	E 3	15JL1967	0.00253)	(1377	GS 1	9MY1967	0.00396)	(1389	GS13	12MY1967	C.CC258)
(1390	GS14	12MY1967	0.00587)	(1391	GS15	12MY1967	C.00479)	(1392	GS16	12MY1967	C.00616)
(1394	GS18	13MY1967	C.00172)	(1555	GS 2	3OC1967	0.00353)	(1558	GS 5	4DC1967	C.CC398)
(1560	GS 8	4OC1967	0.00472)	(1565	GS13	5OC1967	C.01521)	(1572	GS20	8OC1967	C.CC090)
(1573	GS21	8OC1967	0.00112)	(1574	GS22	8DC1967	C.00288)	(1575	GS23	8DC1967	C.00129)
(1544	PU 1	2OC1967	0.00238)	(1547	MS 1	2CC1967	C.00798)	(1546	LU 1	2OC1967	C.15005)
(1520	MO 1	18SE1967	0.00471)	(1521	SH 1	18SE1967	0.00577)	(1522	BH 1	18SE1967	C.01641)
(1527	TR 1	20SE1967	0.05031)	(1529	KW 1	20SE1967	C.01199)	(1545	WL 1	2CC1967	C.03379)
(1552	SM 1	6OC1967	0.00660)	(1550	MR 1	5OC1967	C.26019)	(1553	SG 1	6OC1967	C.08734)
(1426	MS 2	29MY1967	0.02100)	(1351	MI 2	21AP1967	C.00621)	(1427	LU 2	29MY1967	C.01261)
(1350	BH 2	19AP1967	0.04405)	(1401	MO 2	6MY1967	C.03528)	(1402	TR 2	6MY1967	C.09747)
(1400	SB 2	6MY1967	C.05361)	(1404	MO 2	10MY1967	0.01270)	(1406	GB 2	13MY1967	C.C1078)
(1423	WA 2	25MY1967	0.00428)	(							

Navicula lanceolata var. *cymbula* (Donk.) Cleve

Navicula cymbula Donkin, Quart. J. Micr. Sci., 9:294, pl. 18, fig. 6. 1869.
Navicula lanceolata var. *cymbula* (Donk.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(5):22. 1895.

398 NALANCVC TCT NO OF STATIONS 4

(1305	F 2	11OC1964	0.00173)	(1565	GS13	5OC1967	C.00507)	(1428	PU 2	29MY1967	C.00301)
(1404	MO 2	10MY1967	0.01270)	(							

Navicula latens Krasske

Navicula latens Krasske, Arch. Hydrobiol., 31:41. 1937.

395 NALATENS TCT NO OF STATIONS 12

(46752	EV	25JL1937	0.00481)	(1521	SH 1	18SE1967	0.00577)	(1526	MO 1	20SE1967	C.00569)
(1527	TR 1	20SE1967	0.02516)	(1528	SB 1	20SE1967	0.01444)	(1530	FR 1	24SE1967	0.01000)
(1545	WL 1	2OC1967	0.13514)	(1550	MR 1	5OC1967	C.01239)	(1402	TR 2	6MY1967	C.CC541)
(1354	GH 2	25AP1967	0.00345)	(1349	CI 2	19AP1967	0.00359)	(1422	EA 2	23MY1967	C.00511)

Navicula laterostrata Hust.

Navicula laterostrata Hustedt, Internat. Rev. Hydrobiol., 13:357, fig. 4. 1925.

Coll: 1404.

Navicula levanderi Hust.

Navicula levanderi Hustedt, Internat. Rev. Hydrobiol., 43:174. 1943.

400 NALEVAND TCT NO OF STATIONS 2

(46757	EV	25JL1937	0.00481)	(46763	EV	23AU1937	C.04058)	(

Navicula menisculus Schum.

Navicula menisculus Schumann, Schrift. K. Phys.-Ökonom. Ges. Königsberg, 8:56, pl. 2, fig. 33. 1867.

401 NAMENISC TCT NO OF STATIONS 4

(1240	D 6	10JN1964	0.00152)	(1305	F 2	11DC1964	C.C0173)	(1337	C 3	2MR1967	C.0C147)		
(1341	A 3	19AP1967	0.00108)	(									

Navicula meniscuius var. *obtusa* Hust.

Navicula meniscuius var. *obtusa* Hustedt, Arch. Hydrobiol., Suppl. 15:271, pl. 20, figs. 12-14. 1938.

402 NAMENIVC TCT NO OF STATIONS 9

(46758	EV	5JN1937	0.0C357)	(46757	EV	25JL1937	0.00481)	(46763	EV	23AU1937	C.04088)
(46752	EV	15SE1937	0.06530)	(46768	EV	16MR1938	0.02940)	(46762	EV	18MR1938	C.02206)
(1344	MU 1	20DC1967	0.00238)	(1345	WL 1	2CC1967	0.00676)	(1350	BM 2	19AP1967	C.0C220)

Navicula menisculus var. *upsaliensis* Grun.

Navicula (menisculus Schum. var.*?) upsaliensis* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):33. 1880.
Navicula menisculus var. *upsaliensis* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 8, figs. 23-24. 1880.

403 NAMENIVU TCT NO OF STATIONS 40

(46905	CH	MR1947	0.00455)	(46512	CH	AP1947	C.01150)	(46907	CH	JL1947	C.00049)
(46758	EV	5JN1937	C.0C357)	(46771	EV	11JN1937	C.00238)	(46763	EV	23AU1937	C.04058)
(46752	EV	15SE1937	0.06530)	(46767	EV	27CC1937	C.0C774)	(46762	EV	18MR1938	C.02206)
(1388	GS12	12MY1967	C.0C603)	(1389	GS13	12MY1967	0.00258)	(1390	14	12MY1967	C.0C587)
(1391	GS15	12MY1967	0.0C476)	(1392	GS16	12MY1967	C.00308)	(1394	18	13MY1967	C.0C172)
(1397	GS21	13MY1967	C.00065)	(1554	GS 1	30C1967	C.00356)	(1557	GS 4	30C1967	C.0C374)
(1558	GS 5	4CC1967	C.0C356)	(1565	GS13	5CC1967	C.05578)	(1567	15	5GC1967	C.CC139)
(1571	GS19	6DC1967	C.00059)	(1573	GS21	6DC1967	C.00112)	(1574	GS22	6DC1967	C.C1151)
(1544	MU 1	2CC1967	C.0C477)	(1546	LU 1	2CC1967	C.05002)	(1522	BM 1	18SE1967	C.0C365)
(1526	MD 1	20SE1967	0.01128)	(1527	TR 1	20SE1967	C.06918)	(1528	SB 1	20SE1967	C.02008)
(1529	KW 1	20SE1967	0.04797)	(1545	WL 1	2CC1967	C.39192)	(1550	PR 1	5DC1967	C.01239)
(1428	MU 2	25MY1967	C.00904)	(1417	MD 2	22MY1967	0.01122)	(1350	BM 2	19AP1967	C.02423)
(1354	CH 2	25AP1967	0.0C173)	(1404	MQ 2	10MY1967	C.01270)	(1420	IM 2	23MY1967	C.01511)
(1423	WA 2	25MY1967	0.00428)	(							

Navicula micropupula Choln.

Navicula micropupula Cholnoky, Bot. Not., 110(3):353, fig. 61-63. 1957.

404 NAMICROP TCT NO OF STATIONS 3

(1258	F 1	6JL1964	0.0C23E)	(1528	SB 1	20SE1967	C.01444)	(1545	WL 1	2DC1967	C.02C27)

Navicula minima Grun.

Navicula minima Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 14, fig. 15. 1880.

405 NAMINIMA TCT NO OF STATIONS 8

(46905	CH	MR1947	0.00455)	(46764	EV	17JL1937	C.01612)	(46767	EV	27DC1937	C.0C774)
(1291	CY 2	16CC1964	0.00245)	(1341	A 3	19AP1967	0.00108)	(1345	C 5	25AP1967	C.0C195)
(1388	GS12	12MY1967	0.01207)	(1550	PR 1	5CC1967	0.39648)	(			

Navicula minima var. *okamurae* Skv.

Navicula minima var. *okamurae* Skvortzow, Phillipine J. Sci., 62:203, pl. 1, fig. 23. 1937.

406 NAMINIVC TCT NO OF STATIONS 1

(1550	PR 1	5CC1967	0.03717)	(	

Navicula minuscula Grun.

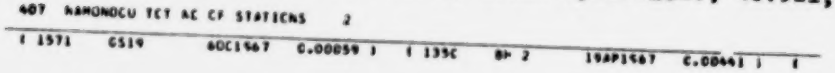
Navicula minuscula Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 14, fig. 3. 1880.

392 NAMPCRG TCT NO OF STATIONS 4

(1244	F 1	11JN1964	C.00110)	(1565	GS13	5GC1967	C.02028)	(1527	TR 1	20SE1967	C.01298)
(1550	PR 1	5CC1967	0.01235)	(							

Navicula monoculata Hust.

Navicula monoculata Hustedt, Arch. Hydrobiol., 40:921, pl. 41, fig. 4. 1945.



Navicula muraliformis Hust.

Navicula muraliformis Hustedt *ex* Brendemühl, Arch. Mikrobiol., 14:440, fig. 5. 1949.

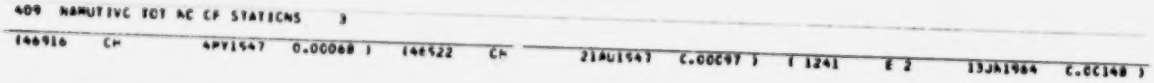
Navicula mutica Kütz.

Navicula mutica Kützing, Bacill., p. 93, pl. 3, fig. 32. 1844.

Coll: 1734.

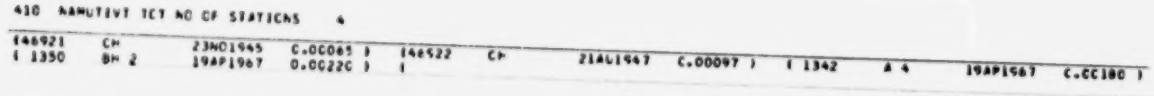
Navicula mutica var. *cohnii* (Hilse) Grun.

Stauroneis cohnii Hilse, Jahres-Ber. Schlesische Ges. Vaterl. Kult., 38:83. 1860.
Navicula mutica var. *cohnii* (Hilse) Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 10, fig. 17. 1880.



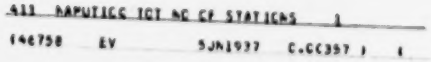
Navicula mutica var. *tropica* Hust.

Navicula mutica var. *tropica* Hustedt, Arch. Hydrobiol., Suppl. 15:233, pl. 17, fig. 6. 1937.



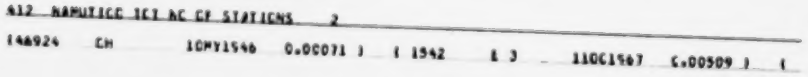
Navicula muticoides Hust.

Navicula muticoides Hustedt, Institt. Parcs Nat. Congo Belge, Expl. Parc Nat. Albert, Mission H. Damas (1935-1936), Fasc. 8, p. 82, pl. 4, figs. 33-36. 1949.



Navicula muticopsis V. H.

Navicula muticopsis Van Heurck, Exped. Antartic Belge, Bot., Diat., p. 12, pl. 2, fig. 181. 1909.



Navicula nyassensis fo. *minor* O. Müll.

Navicula nyassensis fo. *minor* O. Müller, Bot. Jahrb., 45:83, pl. 1, fig. 6. 1911.

430 NAPUPUEM TOT NO OF STATIONS 13

146758	EV	5JN1937	0.04636	146764	EV	17JL1937	0.12087	146757	EV	25JL1937	0.02889
146747	EV	1AU1937	0.00248	146763	EV	23AU1937	0.08117	146752	EV	15SE1937	0.06530
146750	EV	24SE1937	0.01414	146767	EV	27OC1937	0.00387	146762	EV	18MR1938	0.02206
146761	EV	27MY1938	0.00545	1545	WL 1	20C1967	0.00676	1550	MR 1	5CC1967	0.01239
1417	MD 2	22MY1967	0.00374								

Navicula oblonga (Kütz.) Kütz.

Frustulia oblonga Kützing, Linnaea, 8:548, pl. 14, fig. 24. 1833.
Navicula oblonga (Kütz.) Kützing, Bacill., p. 97, pl. 4, fig. 21. 1844.

413 NAOBLONG TOT NO OF STATIONS 4

3541	CH	1FE1681	0.00578	1538	E 5	23SE1967	0.09552	1388	GS12	12MY1967	0.00603
1569	GS17	5CC1967	0.00149								

Navicula odiosa Wallace

Navicula odiosa Wallace, Not. Nat. Acad. Nat. Sci. Philadelphia, 331:5, pl. 2, fig. 4. 1960.

414 NAODIOSA TOT NO OF STATIONS 17

146923	CH	22NO1946	0.00219	146515	CH	5JN1947	0.00303	146757	EV	25JL1937	0.00563
146752	EV	15SE1937	0.04354	146750	EV	24SE1537	0.00471	146759	EV	19MY1938	0.00338
1256	E 2	14JL1964	0.00183	1268	E 2	15AU1964	0.00274	1270	F 1	10AU1964	0.00272
1285	F 1	15SE1964	0.02912	1397	GS21	13MY1967	0.00065	1557	GS 4	30C1967	0.00374
1573	GS21	6DC1967	0.00224	1574	GS22	6DC1967	0.00575	1529	MW 1	20SE1967	0.02398
1401	MD 2	6MY1967	0.00588	1429	WL 2	29MY1967	0.01062				

Navicula oppugnata Hust.

Navicula oppugnata Hustedt, Arch. Hydrobiol., 40(4):925, pl. 42, fig. 1. 1945.

415 NAOPPUGN TOT NO OF STATIONS 37

146917	CH	12JA1946	0.00028	146523	CH	22NO1946	0.00219	146920	CH	20DE1946	0.00092
146916	CH	4MY1947	0.00170	146519	CH	5JN1947	0.01062	146922	CH	21AU1947	0.00533
146758	EV	5JN1937	0.00713	146771	EV	11JN1937	0.00475	146743	EV	20JN1937	0.01285
146764	EV	17JL1937	0.07252	146757	EV	25JL1937	0.02889	146747	EV	1AU1937	0.05446
146763	EV	23AU1537	0.08117	146752	EV	15SE1937	0.06530	146760	EV	22SE1537	0.00985
146750	EV	24SE1537	0.01414	146744	EV	6DC1937	0.00975	146767	EV	27DC1937	0.00774
146749	EV	12MR1938	0.01214	146768	EV	16MR1938	0.01470	146762	EV	18MR1938	0.06617
146751	EV	30MR1938	0.02233	146759	EV	19MY1938	0.00338	146766	EV	14DE1938	0.01584
1240	D 6	10JN1964	0.00153	1278	D 6	18SE1964	0.00384	1297	D 6	14DC1964	0.00190
1388	GS12	12MY1967	0.01207	1392	GS16	12MY1967	0.00300	1394	GS18	13MY1967	0.00172
1574	GS22	6DC1967	0.00288	1546	LU 1	20C1967	0.00500	1527	TR 1	20SE1967	0.00629
1545	WL 1	20C1967	0.03379	1427	LU 2	29MY1967	0.01211	1401	MD 2	6MY1967	0.00588
1402	TR 2	6MY1967	0.00541								

Navicula ordinaria Hust.

Navicula ordinaria Hustedt, Arch. Hydrobiol., 43:352, pl. 37, figs. 27-28. 1950.

83 ANSPECCA TOT NO OF STATIONS 2

1285	F 1	15SE1964	0.00582	1565	GS13	5DC1967	0.01014

Navicula paca Hohn and Hellerm.

Navicula paca Hohn and Hellerman, Trans. American Micr. Soc., 82(3):307, pl. 3, fig. 11. 1963.

482 NASPECCB TOT NO OF STATIONS 1

1268	E 2	15AU1964	0.00821

Navicula paludosa Hust.

Navicula paludosa Hustedt, Abh. Naturw. Ver. Bremen, 34:286. 1957.

416 NAPALLOG TCT NO OF STATIONS 12

146764	EV	17JL1937	0.0C806	)	(1304	P 1	11CC1964	C.00247	)	(1546	LU 1	20C1967	C.C1000)
(1527	TR 1	20SE1967	0.01887	)	(1530	FR 1	24SE1967	C.01000	)	(1545	WL 1	20C1967	C.0C676)
(1550	PR 1	5CC1967	0.12390	)	(1426	MS 2	25MY1967	C.C1C50	)	(1427	LU 2	29PY1967	C.02421)
(1350	BH 2	19AP1967	0.03524	)	(1354	GH 2	25AP1967	0.00690	)	(1404	PQ 2	10MY1967	C.C1270)

Navicula pelliculosa (Bréb.) Hilse

Synedra minutissima var. *pelliculosa* Kützing, Sp. Alg., p. 40. 1849. (=*Frustulia pelliculosa* de Brébisson *in litt.* fide Kützing.).
Navicula pelliculosa (Bréb.) Hilse, Abh. Schleische Ges. Vaterl. Kult., 2(2):68. 1863.

Coll: 1712.

Navicula peratomus Hust.

Navicula peratomus Hustedt, Abh. Naturw. Ver. Bremen, 34(3):277, fig. 26. 1957.

417 NAPERATO TCT NO OF STATIONS 1

(1350	BH 2	19AP1967	0.01101	)	(

Navicula perpusilla Grun.

Navicula perpusilla Grunow, Verh. Zool.-Bot. Wien, 10:552, pl. 4, fig. 7. 1860.

418 NAPERPUS TCT NO OF STATIONS 1

(1550	PR 1	5CC1967	0.0123[illegible]	)	(

Navicula placentula (Ehr.) Kütz.

Pinnularia placentula Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:421, pl. 3(7), fig. 22. 1843.
Navicula placentula (Ehr.) Kützing, Bacill., p. 94. 1844.

419 NAPLACEN TCT NO OF STATIONS 13

146917	CH	12JA1946	0.00055	)	146514	CH	19AP1946	0.00107	)	146965	CH	JA1947	C.CC123)
146916	CH	4MY1947	0.00034	)	146776	EV	9JL1937	C.01193	)	146757	EV	25JL1937	C.0C963)
146767	EV	1AU1937	C.0C248	)	146763	EV	23AU1937	C.02C29	)	146752	EV	15SE1937	C.02177)
146756	EV	27AP1938	0.0C168	)	146761	EV	27MY1938	0.00273	)	(1275	D 2	17SE1964	C.0C045)
(1568	GS16	5CC1967	0.00144	)	(								

Navicula placentula var. *rostrata* A. Mayer

Navicula placentula var. *rostrata* A. Mayer, Kryptog. Forsch., 3:125, pl. 3, figs. 27a-b. 1918.

42C NAPLACVR TCT NO OF STATIONS 20

146924	CH	10MY1946	0.0CC71	)	146919	CH	5JA1947	0.00152	)	146922	CH	21AU1947	C.0C194)
146758	EV	5JN1937	0.0C357	)	146771	EV	11JN1937	0.00238	)	146743	EV	20JN1937	C.0C856)
146764	EV	17JL1937	0.01612	)	146757	EV	25JL1937	C.00481	)	146752	EV	15SE1937	C.C4394)
146768	EV	16MR1938	0.C147C	)	(1236	C* 1	8JN1964	0.00175	)	(1396	GS20	13MY1967	C.00074)
(1554	GS 1	30C1967	0.00356	)	(1565	GS13	50C1967	0.00507	)	(1520	PQ 1	18SE1967	C.0C471)
(1527	IR 1	20SE1967	0.00629	)	(1401	MC 2	6MY1967	0.00588	)	(1439	BV 2	23MY1967	C.C1831)
(1422	GA 2	23MY1967	0.00511	)	(1423	WA 2	25PY1967	0.00428	)	(			

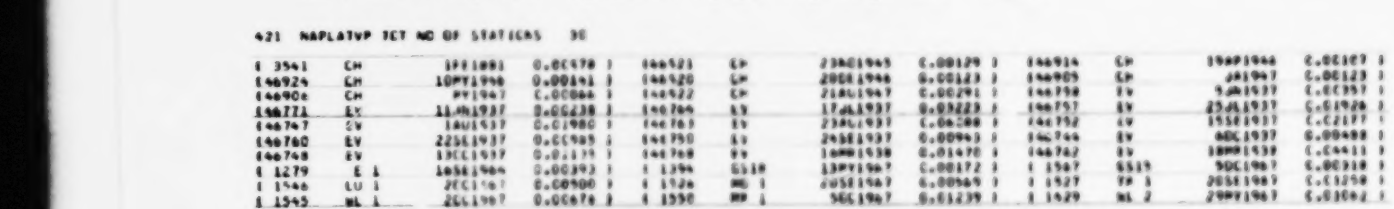
Navicula platycephala O. Müll.

Navicula platycephala O. Müller, Bot. Jahrb., 45:84, pl. 1, fig. 12. 1911.

Coll: 1574.

Navicula platystoma var. *pantocsekii* Wisl. and Kolbe

Navicula platystoma var. *pantocsekii* Wislouch and Kolbe, Trav. Exped. Sci. Olenetz, Part 5, Livr. 1, p. 73, fig. 10. 1927.



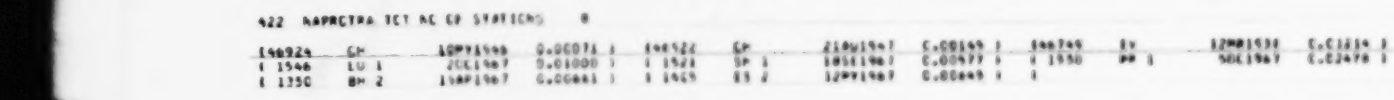
Navicula potzgeri Reim.

Navicula potzgeri Reimer, Proc. Indiana Acad. Sci., 71:315, pl. 1, fig. 5. 1962.

Coll: 1808.

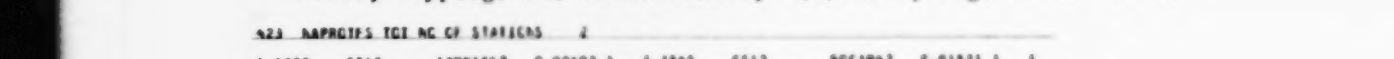
Navicula protracta Grun.

Navicula (cruciculа var.*?) protracta* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):35, pl. 2, fig. 38. 1880.



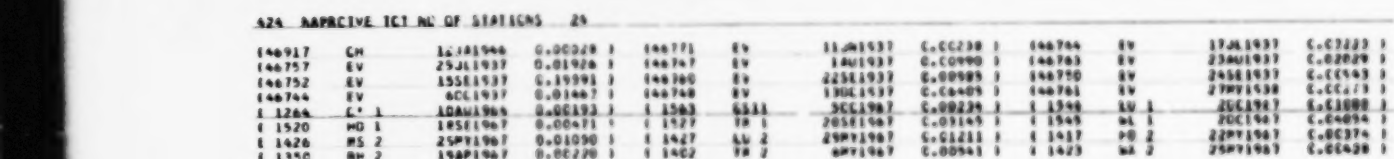
Navicula protracta fo. *subcapitata* (Wisl. and Por.) Hustedt

Navicula lundstromii var. *subcapitata* Wislouch and Poretzky, Trav. Soc. Natural. Leningrad, 47-53:139, fig. 2. 1924.
Navicula protracta var. *subcapitata* (Wisl. and Por.) Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschlands, 7(3)2:316, fig. 1434. 1962.



Navicula protracta var. *elliptica* Gallik

Navicula protracta var. *elliptica* Gallik, Pannonhalmi Szmle, 10:65, fig. 7. 1935.



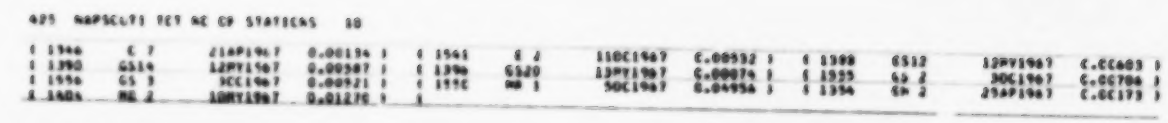
Navicula pseudoclementis Hust.

Navicula pseudoclementis Hustedt, Bot. Not., 1952(4):400, fig. 107. 1952.

Coll: ANSP 46920a.

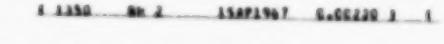
Navicula pseudoscutiformis Hust.

Navicula pseudoscutiformis Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 291, fig. 495. 1930.



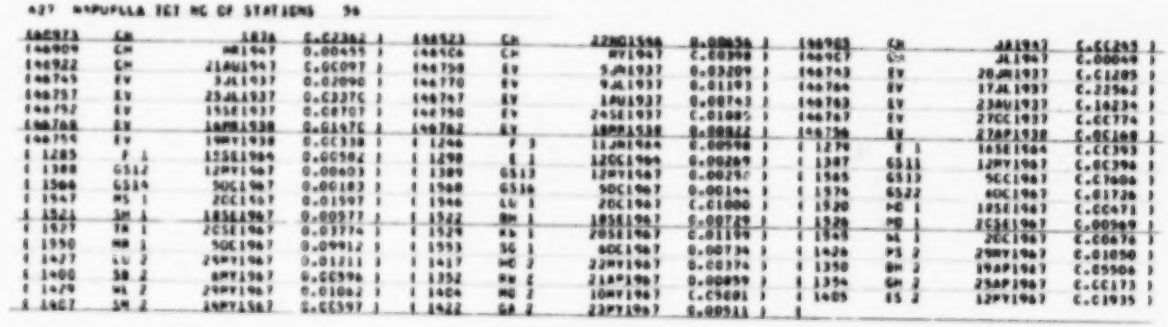
Navicula pseudoventralis Hust.

Navicula pseudoventralis Hustedt *in*: A. Schmidt, Atlas Diat., pl. 401, figs. 116–118. 1934.



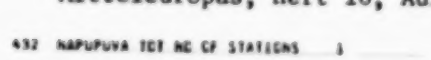
Navicula pupula Kütz.

Navicula pupula Kützing, Bacill., p. 93, pl. 30, fig. 40. 1844.



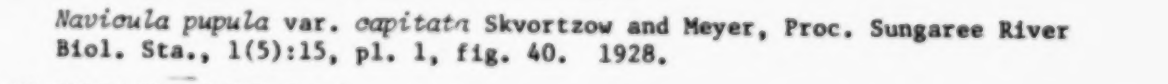
Navicula pupula var. *aquaeductae* (Krasske) Hust.

Navicula aquaeductae Krasske, Bot. Arch., 3:197, fig. 4. 1923.
Navicula pupula var. *aquaeductae* (Krasske) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 282. 1930.



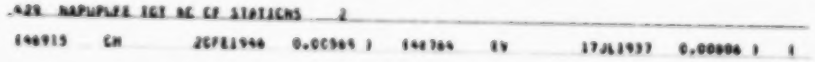
Navicula pupula var. *capitata* Skv. and Meyer

Navicula pupula var. *capitata* Skvortzow and Meyer, Proc. Sungaree River Biol. Sta., 1(5):15, pl. 1, fig. 40. 1928.



Navicula pupula var. *elliptica* Hust.

Navicula pupula var. *elliptica* Hustedt, Abh. Naturw. Ver. Bremen, 20:291, pl. 3, fig. 40. 1911.



Navicula pupula var. *rectangularis* (Greg.) Grun.

Stauroneis rectangularis Gregory, Quart J. Micr. Sci., 2:99, pl. 4, fig. 17. 1854.
Navicula pupula var. *rectangularis* (Greg.) Grunow *in*: Cleve and Grunov, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):45. 1880.

431 NAPUPLVR TCT NO OF STATIONS 3

446784	EV	17JL1937	0.00806	)	(1565	GS13	5OC1967	0.00507	)	(1423	MA 2	25MY1967	C.CC428)

Navicula pupula var. *rostrata* Hust.

Navicula pupula var. *rostrata* Hustedt, Abh. Naturw. Ver. Bremen, 20:211, pl. 3, fig. 39. 1911.

433 NAPUPLVR TCT NO OF STATIONS 13

446923	CH	1876	0.02362	)	446526	CH	10MY1966	0.00071	)	446919	CH	5JN1967	C.00152)
446922	CH	21AU1967	0.00145	)	446747	EV	1AU1937	0.00743	)	446758	EV	24SE1937	C.CC471)
(1388	GS12	12MY1967	0.00803	)	(1528	MG 4	20SE1967	0.00569	)	(1551	ES 1	5OC1967	C.CC799)
(1550	MR 1	5OC1967	0.01239	)	(1350	BM 2	19AP1967	0.00220	)	(1407	SM 2	14MY1967	C.00597)
(1421	CM 2	23MY1967	0.01735	)	(								

Navicula pygmaea Kütz.

Navicula pygmaea Kützing, Sp. Alg., p. 77. 1849.

434 NAPYGPAE TCT NO OF STATIONS 3

(1284	C* 1	1CAU1964	0.00193	)	(1565	GS12	5OC1967	0.00507	)	(1522	BM 1	18SE1967	C.00182)

Navicula quadripartita Hust.

Navicula quadripartita Hustedt, Arch. Hydrobiol., Suppl. 15:263, pl. 18, figs. 35-37. 1937.

436 NAQPAPTI TCT NO OF STATIONS 1

(1545	BL 1	2OC1967	0.00076	)

Navicula radiosa Kütz.

Navicula radiosa Kützing, Bacill., p. 91, pl. 4, fig. 23. 1844.

437 NARADICS TCT NO OF STATIONS 101

460973	CH	1876	0.02362	)	(3540	CP	11MY1875	0.06523	)	(3541	CH	1PE1881	C.23476)
(3507	CH	19PE1881	0.04528	)	446510	CH	OC1965	0.00218	)	446921	CH	23NO1965	C.CC517)
446917	CH	12JA1966	0.00527	)	446515	CH	20FE1966	0.01707	)	446914	CH	19AP1966	C.00427)
446924	CH	10MY1966	0.00423	)	446523	CH	22NO1966	0.03716	)	446920	CH	20DE1966	C.01109)
446905	CH	JA1967	0.00123	)	446509	CH	MR1967	0.02277	)	446912	CH	AP1967	C.04599)
446916	CH	4MY1967	0.02409	)	446506	CH	MY1967	0.01858	)	446919	CH	5JN1967	C.10929)
446907	CH	JL1967	0.11785	)	446522	CH	21AU1967	0.04507	)	446758	EV	5JN1937	C.01783)
446771	EV	11JN1937	0.00475	)	446763	EV	20JN1937	0.02141	)	446770	EV	9JL1937	C.01193)
446784	EV	17JL1937	0.20951	)	446757	EV	25JL1937	0.12999	)	446747	EV	1AU1937	C.08844)
446763	EV	23AU1937	0.04058	)	446792	EV	15SE1937	0.02177	)	446744	EV	4OC1937	C.00488)
446768	EV	13CC1937	0.02135	)	446787	EV	27OC1937	0.00774	)	446768	EV	16MR1938	C.01470)
446762	EV	1MR1938	0.00617	)	446751	EV	30MR1938	0.01117	)	446772	EV	18AP1938	C.00710)
446759	EV	19MY1938	0.00338	)	446766	EV	14DE1938	0.01584	)	(1232	E 5	16MY1964	C.CC368)
(1240	D 6	10JN1964	0.00153	)	(1241	E 2	13JN1964	0.00140	)	(1243	E 6	13JN1964	C.CC624)
(1246	F 1	11JN1964	0.00768	)	(1245	F 2	11JN1964	0.02706	)	(1248	F 3	11JN1964	C.03586)
(1258	F 1	6JL1964	0.00708	)	(1259	F 2	6JL1964	C.00310	)	(1260	F 3	6JL1964	C.00573)
(1268	E 2	15AU1964	0.00547	)	(1279	E 1	16SE1964	C.01178	)	(1285	F 1	15SE1964	C.03494)
(1286	F 2	15SE1964	0.01099	)	(1290	C* 1	16CC1964	0.00379	)	(1304	F 1	11OC1964	C.CC494)
(1305	F 2	11OC1964	0.00345	)	(1306	F 3	11OC1964	C.00832	)	(1341	A 3	19AP1967	C.00108)
(1345	C 5	25AP1967	0.00195	)	(1379	GS 3	9MY1967	0.00928	)	(1380	GS 4	9MY1967	C.00504)
(1382	GS 6	10MY1967	0.01665	)	(1383	GS 7	10MY1967	0.00267	)	(1384	GS 8	10MY1967	C.00739)
(1385	GS 9	10MY1967	0.00706	)	(1386	GS10	12MY1967	0.00287	)	(1387	GS11	12MY1967	C.02376)
(1388	GS12	12MY1967	0.23529	)	(1389	GS13	12MY1967	0.03868	)	(1390	GS14	12MY1967	C.24662)
(1391	GS15	12MY1967	0.19633	)	(1392	GS16	12MY1967	0.01541	)	(1393	GS17	13MY1967	C.06575)
(1394	GS18	13MY1967	0.11009	)	(1395	GS19	13MY1967	0.00352	)	(1396	GS20	13MY1967	C.00148)
(1398	GS22	14MY1967	0.00407	)	(1558	GS 5	4OC1967	0.00793	)	(1563	GS11	5OC1967	C.00701)
(1564	GS12	5OC1967	0.00165	)	(1565	GS13	5OC1967	0.01521	)	(1566	GS14	5OC1967	C.01101)
(1567	GS15	5OC1967	0.08891	)	(1568	GS16	5OC1967	0.00289	)	(1569	GS17	5OC1967	C.13081)
(1570	GS18	5OC1967	0.21817	)	(1571	GS19	6CC1967	0.00117	)	(1572	GS20	6OC1967	C.00990)
(1574	GS22	6OC1967	0.01438	)	(1575	GS28	6OC1967	0.00387	)	(1522	BM 1	18SE1967	C.00182)
(1549	MG 1	4OC1967	0.01370	)	(1551	ES 1	5OC1967	0.00799	)	(1552	SM 1	6OC1967	C.CC660)
(1550	MR 1	5OC1967	0.02478	)	(1426	MS 2	29MY1967	C.01050	)	(1350	BM 2	19AP1967	C.00881)
(1402	TR 2	6MY1967	0.00561	)	(1403	CA 2	10MY1967	0.09154	)	(1404	MG 2	10MY1967	C.04352)
(1405	ES 2	12MY1967	C.01935	)	(1407	SM 2	14MY1967	0.00597	)	(			

Navicula radiosa var. *parva* Wallace

Navicula radiosa var. *parva* Wallace, Not. Nat. Acad. Nat. Sci. Philadelphia, 331:3, pl. 1, fig. 5. 1960.

438 NARADIVP TCT NO OF STATIONS 2

446922	CH	21AU1967	0.00048	)	(1285	F 1	15SE1964	0.01165	)	(			

Navicula radiosa var. *tenella* (Bréb.) Grun.

Navicula tenella de Brébisson *ex* Kützing, Sp. Alg., p. 74. 1849.
Navicula radiosa var. *tenella* (Bréb.) Grunow *in*: Van Heurck, Syn. Diat. Belgique, p. 84. 1885.

439 NARADIVT ICT NO OF STATIONS 57

146915	CH	20FE1946	0.00565	146920	CH	20DE1946	0.00031	146919	CH	5JN1947	0.00303
146764	EV	17JL1937	0.04029	146757	EV	25JL1937	0.01926	146763	EV	23AU1937	0.04058
146766	EV	14DE1938	0.01586	1229	D 5	16MY1964	0.00211	1231	E 2	18MY1964	0.00245
1240	D 6	10JN1964	0.00193	1243	E 6	13JN1964	0.00209	1244	F 1	11JN1964	0.00439
1256	E 2	14JL1964	0.00183	1258	F 1	6JL1964	0.00944	1268	E 2	15AU1964	0.01094
1270	F 1	10AU1964	0.01634	1275	D 2	17SE1964	0.00645	1279	E 1	16SE1964	0.01178
1285	F 1	15SE1964	0.52996	1286	F 2	15SE1964	0.01095	1304	F 1	11OC1964	0.00494
1320	E 4	7NO1964	0.00207	1340	C 7	28PR1967	0.00073	1341	A 3	19AP1967	0.00325
1452	E 2	14JL1967	0.00852	1536	E 2	24SE1967	0.00545	1541	E 2	11CC1967	0.01064
1542	E 3	11CC1967	0.00509	1387	GS11	12MY1967	0.00396	1388	GS12	12MY1967	0.00603
1389	GS13	12MY1967	0.00258	1390	GS14	12MY1967	0.00587	1394	GS10	13MY1967	0.00344
1395	GS19	13MY1967	0.00117	1554	GS 1	3OC1967	0.00712	1555	GS 2	3OC1967	0.00706
1557	GS 4	3OC1967	0.01121	1558	GS 5	4OC1967	0.00793	1560	GS 8	4OC1967	0.00945
1574	GS22	6OC1967	0.00863	1544	MU 1	2OC1967	0.00477	1547	PS 1	2OC1967	0.00798
1522	BM 1	18SE1967	0.00182	1530	PR 1	24SE1967	0.12001	1549	PQ 1	4OC1967	0.01370
1552	SM 1	6OC1967	0.00660	1550	MR 1	5OC1967	0.04956	1553	SG 1	6OC1967	0.01469
1428	MU 2	29MY1967	0.00301	1426	MS 2	29MY1967	0.02100	1350	BM 2	19AP1967	0.00388
1402	TR 2	6MY1967	0.00541	1352	KN 2	21AP1967	0.00859	1354	GM 2	25AP1967	0.00345
1403	CA 2	10MY1967	0.23539	1404	MG 2	10MY1967	0.08892	1405	ES 2	12MY1967	0.01290

Navicula reinhardtii (Grun.) Grun.

Stauroneis reinhardtii Grunow, Verh. Zool.-Bot. Ges. Wien, 10:566, pl. 6, fig. 19. 1860.
Navicula reinhardtii (Grun.) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):32. 1880.

440 NAREIANA ICT NO OF STATIONS 41

160973	CH	1876	0.04724	3540	CH	11MY1875	0.00932	3541	CH	1FE1881	0.00978
146910	CH	OC1945	0.00109	146921	CH	23NO1945	0.00129	146917	CH	12JA1946	0.00055
146924	CH	10MY1946	0.00071	146920	CH	20DE1946	0.00266	146916	CH	4MY1947	0.00034
146906	CH	MY1947	0.00066	146927	CH	JL1947	0.00148	146922	CH	21AU1947	0.00097
146758	EV	5JN1937	0.00713	146752	EV	15SE1937	0.00530	146750	EV	24SE1937	0.00942
146746	EV	6OC1937	0.00488	146748	EV	13CC1937	0.02135	146747	EV	27OC1937	0.00774
146745	EV	12MR1938	0.01214	146751	EV	30MR1938	0.01117	146761	EV	27MY1938	0.00273
1236	C* 1	8JN1964	0.00175	1265	F 2	11JN1964	0.00246	1258	F 1	6JL1964	0.00238
1285	F 1	15SE1964	0.00582	1541	E 2	11CC1967	0.00532	1387	GS11	12MY1967	0.00398
1391	GS15	12MY1967	0.00479	1396	GS20	13MY1967	0.00148	1398	GS22	14MY1967	0.00304
1574	GS22	6OC1967	0.00575	1575	GS28	6OC1967	0.00387	1544	PU 1	2OC1967	0.00238
1545	ML 1	2OC1967	0.00676	1550	MR 1	5OC1967	0.01239	1426	PS 2	29MY1967	0.02100
1354	GM 2	25AP1967	0.00345	1429	WL 2	29MY1967	0.01062	1404	PQ 2	10MY1967	0.01270
1405	ES 2	12MY1967	0.00645	1407	SP 2	14MY1967	0.00597				

Navicula reinhardtii var. *elliptica* Herib.

Navicula reinhardtii var. *elliptica* Héribaud, Diat. Foss. Auvergne, Vol. 2, p. 8. 1903.

441 NAREINE ICT NO OF STATIONS 7

146905	CH	JA1947	0.00295	146915	CH	5JN1947	0.00152	1544	PU 1	20C1967	0.00238
1528	SB 1	20SE1967	0.01444	1428	MU 2	29MY1967	0.00301	1427	LU 2	29MY1967	0.03632
1354	GM 2	25AP1967	0.00518								

Navicula rhynchocephala Kütz.

Navicula rhynchocephala Kützing, Bacill., p. 152, pl. 30, fig. 35. 1844.

442 NARHYNCH ICT NO OF STATIONS 7

146915	CH	20FE1946	0.00565	146920	CH	20DE1946	0.00031	146916	CH	4MY1947	0.00034
146764	EV	17JL1937	0.00806	146757	EV	25JL1937	0.00481	146763	EV	23AU1937	0.02029
146768	EV	16PR1938	0.01470								

Navicula rotunda Hust.

Navicula rotunda Hustedt, Arch. Hydrobiol., 40:916, pl. 41, fig. 29. 1945.

443 NAROTUND ICT NO OF STATIONS 10

1565	GS13	5OC1967	0.04563	1575	GS28	6OC1967	0.00129	1546	LU 1	20C1967	0.01090
1525	PM 1	20SE1967	0.01393	1526	MD 1	20SE1967	0.00569	1527	TR 1	20SE1967	0.01887
1549	PQ 1	4OC1967	0.01370	1550	MR 1	5OC1967	0.01239	1350	BM 2	19AP1967	0.00661
1402	TR 2	6MY1967	0.00541								

Navicula salinarum Grun.

Navicula salinarum Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):33, pl. 2, fig. 34. 1880.

446 NASALINA TOT NO OF STATIONS 1

(46916	CH		4MY1967	C.00034)	(								

Navicula schoenfeldii Hust.

Navicula schönfeldii Hustedt *in*: Pascher, Sussw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 301, fig. 520. 1930.

455 NASCHONG TOT NO OF STATIONS 1

(1550	MR 1		5OC1967	0.01239)	(								

Navicula scutelloides Wm. Smith

Navicula scutelloides Wm. Smith *ex* Gregory, Quart. J. Micr. Sci., 4:4, pl. 1, fig. 15. 1856.

445 NASCUTEL TOT NO OF STATIONS 38

(60973	CH		1876	0.02362)	(3540	CH		11MY1879	C.00466)	(46920	CH		20DE1946	C.CCC31)
(46747	EV		1AU1937	0.00248)	(1245	F 2		11JA1964	C.00346)	(1267	D 6		18AU1964	C.CC216)
(1274	D 1		17SE1964	0.00469)	(1279	E 1		16SE1964	C.01571)	(1304	F 1		11OC1964	C.00247)
(1320	E 4		7NO1964	0.00207)	(1541	E 2		11OC1967	0.00532)	(1542	E 3		11OC1967	C.C1017)
(1382	GS 6		10MY1967	0.00278)	(1395	GS19		13MY1967	0.00117)	(1396	GS20		13MY1967	C.CC222)
(1554	GS 1		30C1967	0.00712)	(1555	GS 2		30C1967	C.00706)	(1556	GS 3		30C1967	C.00521)
(1557	GS 4		30C1967	0.00374)	(1558	GS 5		4CC1967	0.00396)	(1565	GS13		5OC1967	1.29804)
(1567	GS15		5OC1967	0.00794)	(1569	GS17		5OC1967	C.00149)	(1571	GS19		6OC1967	C.00059)
(1572	GS20		6OC1967	C.00721)	(1573	GS21		6OC1967	C.00448)	(1574	GS22		6OC1967	C.C1438)
(1575	GS28		6OC1967	0.00387)	(1546	LU 1		20C1967	0.00500)	(1520	HO 1		18SE1967	C.00471)
(1530	FR 1		24SE1967	0.03000)	(1550	MR 1		5OC1967	C.11151)	(1553	SG 1		6OC1967	0.C2938)
(1426	MS 2		25MY1967	0.01050)	(1427	LU 2		29MY1967	C.08475)	(1350	BH 2		19AP1967	C.CC881)
(1354	GH 2		25AP1967	0.00173)	(1404	MG 2		10MY1967	0.03811)	(				

Navicula semenoides Hust.

Navicula semenoides Hustedt, Arch. Hydrobiol., 18:163, pl. 5, fig. 8. 1927.

373 NADECUSC TOT NO OF STATIONS 6

(1279	E 1		16SE1964	0.00393)	(1319	E 3		7NO1964	C.00262)	(1343	A 6		19AP1967	C.CCC69)
(1388	GS12		12MY1967	0.01810)	(1565	GS13		5OC1967	0.29916)	(1573	GS21		6OC1967	C.CC112)

Navicula seminuloides Hust.

Navicula seminuloides Hustedt *in*: A. Schmidt, Atlas Diat., pl. 401, figs. 68-71. 1936.

448 NASEMINC TOT NO OF STATIONS 5

(1286	F 2		15SE1964	C.01095)	(1325	F 3		6NO1964	0.0025.	(1348	E 5		23AP1967	C.CC137)
(1567	GS15		5OC1967	0.00318)	(1521	SM 1		18SE1967	0.00577)	(				

Navicula seminulum Grun.

Navicula seminulum Grunow, Verh. Zool.-Bot. Ges. Wien, 10:552, pl. 4, fig. 3. 1860.

446 NASEMINU TOT NO OF STATIONS 26

(46920	CH		20DE1946	0.00031)	(46909	CH		MR1947	C.00455)	(1278	D 6		18SE1964	C.CC284)
(1279	E 1		16SE1964	0.01178)	(1285	F 1		15SE1964	C.00582)	(1318	E 2		7NO1964	C.CC190)
(1348	E 5		23AP1967	0.00137)	(1565	GS13		5OC1967	8.51840)	(1566	GS14		5OC1967	C.CC183)
(1567	GS15		5OC1967	0.00476)	(1569	GS17		5OC1967	0.00149)	(1574	GS22		6OC1967	C.C1438)
(1546	LU 1		20C1967	0.01501)	(1521	SM 1		18SE1967	0.00577)	(1522	BM 1		18SE1967	C.0C547)
(1523	RA 1		15SE1967	0.00923)	(1526	MO 1		20SE1967	0.00969)	(1527	TR 1		20SE1967	C.C3774)
(1529	KW 1		20SE1967	0.01199)	(1545	WL 1		2CC1967	C.00676)	(1551	ES 1		5OC1967	C.0C799)
(1552	SP 1		6OC1967	0.00660)	(1550	MR 1		5OC1967	C.49560)	(1553	SG 1		6OC1967	C.C2203)
(1350	BH 2		19AP1967	0.07048)	(1354	GH 2		25AP1967	0.00173)	(				

Navicula seminulum var. *intermedia* Hust.

Navicula seminulum var. *intermedia* Hustedt, Arch. Hydrobiol., 39:110, figs. 25-28. 1942.

447 NASEMIVI TOT NO OF STATIONS 1

(1264 C° 1 10AU1964 0.00193) (

Navicula similis Krasske

Navicula similis Krasske, Bot. Arch., 27:254, fig. 15. 1929.

450 NASIPILI TOT NO OF STATIONS 3

(388 GS12 12MY1967 C.0C6C3) (1565 GS13 5CC1967 0.01521) (1350 BH 2 15AP1567 C.0C22C)

Navicula simplex Krasske

Navicula simplex Krasske, Abh. Ber. Ver. Naturk. Cassel, 56:112, pl. 1, fig. 16. 1925.

459 NASIPPLE TOT NO OF STATIONS 1

(1350 BH 2 15AP1967 0.0C22C) (

Navicula skabitschewskyi Kiselev

Navicula skabitschewskyi Kiselev (original description not available, cited in Zabelina *et al*, Opred, Presn. Vod. USSR, p. 279. 1951).

451 NASKABIQ TOT NO OF STATIONS 1

(1349 C1 2 15AP1967 0.00359) (

Navicula stroesei A. Cleve

Stauroneis dilatata Wm. Smith *sensu* Ströse, Festschr. XXXVII Versamml. Deutsch. Philog. Schulm. Dessau, p. 11, pl. 1, fig. 28. 1884. (non Wm. Smith 1853).
Navicula tuscula var. *ströesei* Østrup, Danske Diat., p. 84, pl. 1, fig. 28. 1910.
Navicula ströesei A. Cleve, Acta Forest. Fennica, 22(4):63. 1922.
Navicula pseudotuscula Hustedt, Internat. Rev. Hydrobiol., 43:170. 1943.

452 NASTROES TOT NO OF STATIONS 9

(46758	EV	5JN1937	0.01426)	(46764	EV	17JL1537	C.04029)	(46757	EV	25JL1937	C.0C963)
(1382	GS 6	10MY1967	0.00278)	(1388	GS12	12MY1967	0.01207)	(1391	GS15	12MY1967	0.00479)
(1565	GS13	5DC1967	C.00507)	(1569	GS17	5DC1967	C.00149)	(1574	GS22	6DC1967	C.0C288)

Navicula stroemii Hust.

Navicula strömii Hustedt, Arch. Hydrobiol., 22:544, fig. 3. 1931.

453 NASTROMC TOT NO OF STATIONS 3

(46915 CH 5JN1947 0.00910) (46747 EV 14JU1937 0.00248) (1565 GS13 5DC1967 C.02028)

Navicula subcostulata Hust.

Navicula subcostulata Hustedt, Abh. Bremen Wiss. Ges., 8/9:386, fig. 13. 1934.

457 NASCCSTU TOT NO OF STATIONS 1

(1433 C 3 17JN1967 0.0C646) (

Navicula subhamulata Grun.

Navicula subhamulata Grunow *in*: Van Heurck, Syn. Diat. Belgique, p. 106, pl. 13, fig. 14. 1885.

458 NASHAMUL TCT AC CF STATICNS 5

(1574	GS22	6CC1967	0.00288)	(1545	NL 1	20C1967	0.00676)	(1549	MO 1	40C1967	C.01370)		
(1350	BH 2	19AP1967	0.00441)	(1403	CA 2	10MY1967	0.01308)	(					

Navicula subrhynchocephala Hust.

Navicula subrhynochocephala Hustedt, Arch. Hydrobiol., Suppl. 14:156, pl. 1, fig. 11. 1935.

487 NASPECC1 TCT AC CF STATICNS 19

160973	CH	1876	0.04724)	146515	CH	20FE1946	0.00569)	146758	EV	5JA1937	C.CC357)		
146743	EV	20JN1927	0.00428)	146770	EV	9JL1937	0.01789)	146764	EV	17JL1937	0.00446)		
146757	EV	25JL1927	0.C337C)	146763	EV	23JL1937	0.12175)	146752	EV	15SE1937	C.C2177)		
146760	EV	22SE1537	0.00452)	146768	EV	16PR1538	0.04410)	146762	EV	18MR1938	C.08822)		
146766	EV	14DE1938	0.01584)	(1306	F 3	11CC1964	C.00277)	(1557	GS 4	3CC1967	C.CC374)		
(1546	LU 1	20C1967	0.02501)	(1350	BH 2	19AP1967	0.00661)	(1404	MO 2	10MY1967	C.05081)		
(1407	SM 2	14MY1967	0.00597)	(									

Navicula subrotundata Hust.

Navicula subrotundata Hustedt, Arch. Hydrobiol., 40:917, pl. 41, figs. 30-33. 1945.

480 NASROTUD TCT AC CF STATICNS 12

146916	CH	4MY1947	C.00034)	(1274	D 1	17SE1964	C.00469)	(1275	D 2	17SE1964	C.CC645)		
(1348	E 5	23AP1967	0.00137)	(1449	C 2	16JL1967	0.00382)	(1538	E 5	23SE1967	C.CC552)		
(1384	GS 8	10MY1967	0.00185)	(1565	GS13	5DC1967	C.04056)	(1574	GS22	6CC1967	C.CC575)		
(1545	NL 1	20C1967	0.00676)	(1350	BH 2	19AP1967	0.00881)	(1394	GH 2	25AP1967	C.0C345)		

Navicula subsulcata Hust.

Navicula subsulcata Hustedt, Arch. Hydrobiol., Suppl 15:261, pl. 18, fig. 7. 1938.

526 NASPECA2 TCT AC CF STATICNS 1

(1350 BH 2 15AP1967 0.CC22C) (

Navicula tantula Hust.

Navicula tantula Hustedt, Internat. Rev. Hydrobiol., 43:162. 1943.

481 NATANTUL TCT AC CF STATICNS 27

146763	EV	23AU1537	0.02029)	(1272	C* 1	10SE1964	C.00410)	(1274	D 1	17SE1964	C.01408)		
(1275	D 2	17SE1964	0.00645)	(1278	D 6	18SE1964	C.00384)	(1280	E 2	16SE1964	C.00681)		
(1281	E 3	16SE1964	0.00392)	(1282	E 4	16SE1964	C.01138)	(1284	E 6	17SE1964	C.CC318)		
(1285	F 1	15SE1964	0.01747)	(1287	F 3	15SE1964	C.00500)	(1303	E 6	13DC1964	C.01119)		
(1322	E 6	7NC1964	0.00333)	(1323	F 1	6ND1964	C.00139)	(1324	F 2	6ND1964	C.CC233)		
(1343	A 6	19AP1967	0.00065)	(1534	A 6	19SE1967	C.00310)	(1538	E 5	23SE1967	C.00552)		
(1565	GS13	5DC1967	0.00507)	(1567	GS15	5DC1967	C.00476)	(1571	GS19	6DC1967	C.CCC59)		
(1523	RA 1	15SE1967	0.00923)	(1525	PN 1	20SE1967	C.01393)	(1545	NL 1	20C1967	C.C1351)		
(1551	ES 1	5DC1967	0.00799)	(1550	MR 1	5DC1967	C.03717)	(1417	MO 2	22MY1967	C.00748)		

Navicula tridentula var. *parallela* Krasske

Navicula tridentula var. *parallela* Krasske, Abh. Ver. Naturk. Cassel, 56:46, pl. 2, fig. 35. 1926.

467 NATRIDPP TCT AC CF STATICNS 2

(1550	MR 1	5DC1967	C.01235)	(1404	MO 2	10MY1967	C.01270)	(					

Navicula tripunctata (O. F. Müll.) Bory

Vibrio tripunctata O. F. Müller, Animal. Infus., p. 52, pl. 7, fig. 2. 1786.

Navicula tripunctata (O. F. Müll.) Bory, Encyclop. Method., p. 563. 1824.

463 NATRIPUN TCT NO OF STATIONS 77

(3540	CH	11MY1879	0.00932)	(3541	CH	1FE1881	0.00978)	(46910	CH	0C1945	C.0C109)
(46921	CH	23ND1945	0.00065)	(46517	CH	12JA1946	0.00083)	(46914	CH	19AP1946	C.0C107)
(46905	CH	JA1947	0.00122)	(46509	CH	MR1947	0.00455)	(46906	CH	MY1947	C.00066)
(46758	EV	5JN1937	0.01070)	(46764	EV	17JL1937	0.01612)	(46768	EV	16MR1938	C.C1470)
(1240	D 6	10JN1964	0.00767)	(1243	E 6	13JN1964	0.00209)	(1264	C° 1	8JN1964	C.0C525)
(1272	C° 1	10SE1964	0.00410)	(1273	C° 2	10SE1964	C.01075)	(1285	F 1	15SE1964	C.C1165)
(1301	E 4	13DC1964	0.00442)	(1324	F 2	6ND1964	0.00233)	(1341	A 3	19AP1967	C.0C434)
(1345	C 5	25AP1967	C.0C195)	(1375	E 3	7MY1967	C.00241)	(1435	C 7	13JN1967	C.0C316)
(1504	A 3	28AU1967	0.00247)	(1533	A 4	15SE1967	C.00464)	(1534	A 6	15SE1967	C.0C310)
(1536	E 2	24SE1967	0.00273)	(1378	GS 2	9MY1967	0.00421)	(1379	GS 3	9MY1967	C.0C309)
(1397	GS21	13MY1967	C.0C131)	(1555	GS 2	3DC1967	C.00353)	(1559	GS 7	4DC1967	C.CC699)
(1565	GS13	5DC1967	0.00507)	(1567	GS15	5DC1967	C.00159)	(1569	GS17	5DC1967	C.0C297)
(1570	GS18	5DC1967	0.01983)	(1571	GS19	6DC1967	C.00117)	(1572	GS20	6DC1967	C.CCC90)
(1574	GS22	6DC1967	0.01438)	(1575	GS28	6DC1967	C.00258)	(1524	PI 1	2CSE1967	C.04378)
(1546	LU 1	2CC1967	0.01501)	(1520	MC 1	18SE1967	C.00471)	(1521	SM 1	18SE1967	C.01731)
(1522	BH 1	18SE1967	0.02918)	(1523	AA 1	19SE1967	C.00923)	(1526	MO 1	20SE1967	C.C6258)
(1527	TR 1	20SE1967	0.00629)	(1529	KN 1	20SE1967	C.02398)	(1531	CH 1	25SE1967	C.C4227)
(1545	WL 1	20C1967	0.02027)	(1548	CA 1	3DC1967	0.02544)	(1549	MO 1	4DC1967	C.01370)
(1551	ES 1	5CC1967	0.00795)	(1550	MR 1	5CC1967	C.03717)	(1553	SG 1	6DC1967	C.0C734)
(1428	MU 2	29MY1967	0.03314)	(1426	MS 2	29MY1967	C.04199)	(1427	LU 2	29MY1967	C.01211)
(1417	MO 2	22MY1967	C.02617)	(1418	SM 2	22MY1967	C.01555)	(1350	BH 2	15AP1967	C.14097)
(1399	PW 2	5MY1967	0.C068C)	(1401	MC 2	6MY1967	C.06468)	(1402	TR 2	6MY1967	C.C1624)
(1400	SB 2	6MY1967	0.07148)	(1352	KN 2	21AP1967	C.00859)	(1354	CH 2	25AP1967	C.00863)
(1429	WL 2	26MY1967	0.05308)	(1403	CA 2	10MY1967	0.02815)	(1406	GB 2	13MY1967	C.CC805)
(1422	GA 2	28MY1967	0.01022)	(1423	MA 2	25MY1967	0.00428)	(			

Navicula tripunctata var. *cuneata* (Lauby) comb. nov.

Navicula gracilis var. *cuneata* Lauby, Bull. Serv. Carte Geol. France, 125:145, pl. 10, fig. 8. 1910.

464 NATRIPVC TCT NO OF STATIONS 6

(46915	CH	20FE1946	0.C1767)	(46915	CH	5JA1947	C.00455)	(1272	C° 1	10SE1964	C.CC41C)
(1575	GS28	6DC1967	0.00129)	(1524	MI 1	20SE1967	C.06567)	(1350	BH 2	19AP1967	C.0C661)

Navicula tripunctata var. *schizonemoides* (V. H.) Patr.

Schizonema neglectum Thwaites, Annals Mag. Nat. Hist., Ser. 2, 1:171, pl. 12(J), figs. 1-4. 1848.

Navicula gracilis var. *schizonemoides* Van Heurck, Syn. Diat. Belgique, p. 83. 1885.

Navicula tripunctata var. *schizonemoides* (V. H.) Patrick, Proc. Acad. Nat. Sci. Philadelphia, 111:106, pl. 7, fig. 2. 1959.

465 NATRIPVS TCT NO OF STATIONS 5

(46922	CH	21AU1947	0.00097)	(1279	E 1	16SE1964	C.00393)	(1346	C 7	21AP1967	C.0C134)
(1557	GS 4	3DC1967	0.00374)	(1558	GS 5	4DC1967	C.00396)	(			

Navicula tuscula Ehr.

Navicula tuscula Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:215. 1840.

466 NATUSCUL TCT NO OF STATIONS 25

(46973	CH	1876	0.02262)	(3541	CH	1FE1881	0.03513)	(46921	CH	23ND1945	C.0C065)
(46917	CH	12JA1946	0.00028)	(46514	CH	19AP1946	0.00107)	(46924	CH	10MY1946	C.00071)
(46923	CH	22ND1946	0.00437)	(46520	CH	20DE1946	C.C0C31)	(46922	CH	21AU1947	C.CC291)
(46743	EV	20JN1937	0.00428)	(46765	EV	3JL1937	0.02090)	(46757	EV	25JL1937	C.00481)
(46747	EV	1AU1937	0.01238)	(46763	EV	23AU1937	C.C4C58)	(46752	EV	15SE1937	C.04354)
(46750	EV	24SE1937	0.0C943)	(1244	F 1	11JN1964	0.00110)	(1266	D 3	18AU1964	C.0C351)
(1541	E 2	11CC1967	C.00532)	(1565	GS13	5DC1967	C.00507)	(1574	GS22	6DC1967	C.0C575)
(1527	TR 1	20SE1967	0.00629)	(1545	WL 1	2CC1967	C.00676)	(1550	MR 1	5DC1967	C.01239)
(1401	MC 2	6MY1967	0.CC58E)	(							

Navicula tuscula fo. *obtusa* Hust.

Navicula tuscula fo. *obtusa* Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 309. 1930.

467 NATUSCVP TOT NC OF STATIONS 17

(3540	CH	11MY1879	0.00466)	(46763	EV	23AU1937	C.02029)	(1268	E 2	15AU1964	C.0C274)
(1285	F 1	19SE1964	0.00582)	(1541	E 2	11DC1967	0.00532)	(1394	GS18	13MY1967	C.0C172)
(1555	GS 2	3CC1967	0.00353)	(1560	GS 8	4DC1967	C.00472)	(1567	GS15	5CC1967	C.00159)
(1574	GS22	6DC1967	0.00863)	(1530	FR 1	24SE1967	C.03000)	(1545	WL 1	2DC1967	C.0C676)
(1553	SG 1	6DC1967	0.00734)	(1426	MS 2	29MY1967	C.01050)	(1403	CA 2	10MY1967	C.01308)
(1404	MO 2	10MY1967	0.01270)	(1405	ES 2	12MY1967	0.00645)	(			

Navicula tuscula fo. *rostrata* Hust.

Navicula tuscula fo. *rostrata* Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 308. 1930.

469 NATUSCVB TOT NC OF STATIONS 1

(1404	MO 2	10MY1967	0.01270)	(							

Navicula vanheurckii Patr.

Navicula vanheurckii Patrick *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:491, pl. 46, fig. 22. 1966.

472 NAVANHEU TOT NC OF STATIONS 7

(1275	D 2	17SE1964	0.CC645)	(1388	GS12	12MY1967	0.01207)	(1389	GS13	12MY1967	C.CC516)
(1392	GS16	12MY1967	0.00925)	(1396	GS20	13MY1967	C.00074)	(1554	ES 1	3CC1967	C.00356)
(1545	WL 1	2CC1967	0.00676)	(							

Navicula ventosa Hust.

Navicula ventosa Hustedt, Abh. Naturw. Ver. Bremen, 34:281, fig. 28-31. 1957.

473 NAVENTOS TOT NO OF STATIONS 4

(1544	MU 1	2DC1967	0.00238)	(1527	TR 1	20SE1967	C.00629)	(1550	MR 1	5DC1967	C.01239)
(1354	GH 2	25AP1967	0.00173)	(							

Navicula ventralis Krasske

Navicula ventralis Krasske, Bot. Arch., 3:197, fig. 3. 1923.

474 NAVENTRA TOT NO OF STATIONS 2

(1550	MR 1	5CC1967	0.01195)	(1404	MO 2	10MY1967	0.01270)	(			

Navicula viridula (Kütz.) Kütz.

Frustulia viridula Kützing, Linnaea, 8:551, pl. 13, fig. 12. 1833.
Navicula viridula (Kütz.) Kützing, Bacill., p. 91, pl. 30, fig. 47. 1844.

475 NAVIRIDU TOT NC OF STATIONS 25

(46917	CH	12JA1946	C.00028)	(46523	CH	22NO1946	0.00219)	(46920	CH	20DE1946	(.CCC31)
(46907	CH	JL1947	0.00099)	(46757	EV	25JL1937	0.00481)	(46747	EV	1AU1937	C.0C248)
(1341	A 3	19AP1967	C.00108)	(1448	A 6	10JL1967	C.00354)	(1523	A 4	19SE1967	C.CC464)
(1566	GS14	5DC1967	0.00183)	(1567	GS15	5DC1967	C.00159)	(1569	GS17	5DC1967	C.0C149)
(1522	BH 1	18SE1967	0.00729)	(1531	GH 1	25SE1967	0.0165!)	(1545	WL 1	2DC1967	C.00676)
(1550	MR 1	5CC1967	0.03717)	(1553	SG 1	6CC1967	0.01469)	(1426	MS 2	29MY1967	C.05249)
(1427	LU 2	29MY1967	0.01211)	(1417	HO 2	22MY1967	0.00748)	(1350	BH 2	19AP1967	C.C1982)
(1401	MO 2	6MY1967	0.00588)	(1354	GH 2	25AP1967	0.00518)	(1349	CI 2	19AP1967	C.0C359)
(1422	GA 2	23MY1967	0.0C511)	(							

Navicula viridula var. *avenacea* (Bréb.) V. H.

Navicula (viridula Kg. var.?*) avenacea* de Brébisson *ex* Grunow *in*: Schneider, Naturw. Beitr. Kenntn. Kaukasusländer, p. 112, pl. 4, fig. 23. 1878.
Navicula viridula var. *avenacea* (Bréb.) Van Heurck, Syn. Diat. Belgique, p. 84. 1885.

476 NAVIRIVA TCT NC OF STATIONS 8

146924	CH	10MY1966	0.00071	)	146522	CH	21AU1967	C.00048	)	1559	GS 7	40C1967	C.CC350
1546	LU 1	20C1967	0.00500	)	1427	LU 2	29MY1967	0.01211	)	1350	BH 2	19AP1967	C.00881
1354	GH 2	25AP1967	0.00173	)	1422	GA 2	23MY1967	C.02044	)				

Navicula viridula var. *linearis* Hust.

Navicula viridula var. *linearis* Hustedt, Arch. Hydrobiol., Suppl. 15:264, pl. 19, figs. 1-2. 1937.

478 NAVIRIVL TCT NC OF STATIONS 6

1316	D 6	9NO1964	0.00378	)	1395	GS15	13MY1967	0.00117	)	1571	GS19	60C1967	C.00059
1575	GS28	60C1967	0.00129	)	1520	MO 1	18SE1967	0.00471	)	1427	LU 2	29MY1967	0.01211

Navicula viridula var. *rostellata* (Kütz.) Cleve

Navicula rostellata Kützing, Bacill., p. 95, pl. 3, fig. 65. 1844.
Navicula viridula var. *rostellata* (Kütz.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):15. 1895.

479 NAVIRIVR TCT NC OF STATIONS 5

146758	EV	5JN1937	C.0C357	)	1571	GS15	6CC1967	C.00059	)	1550	MR 1	50C1967	C.01239
1350	BH 2	19AP1967	0.00220	)	1421	CH 2	23MY1967	0.01735	)				

Navicula vulpina Kütz.

Navicula vulpina Kützing, Bacill., p. 92, pl. 3, fig. 43. 1844.

480 NAVULPIN TCT NC OF STATIONS 2

1388	GS12	12MY1967	0.00603	)	1403	CA 2	10MY1967	C.01308	)				

Navicula wittrockii (Lagerst.) A. Cleve

Stauroneis wittrockii Lagerstedt, Bih. K. Svenska Vet.-Akad. Handl., 1(14):38, pl. 2, fig. 15. 1873.
Navicula wittrockii (Lagerst.) A. Cleve, Soc. Sci. Fennica Comm. Biol., 4(14):86. 1934.

481 NAWITTRO TCT NC OF STATIONS 7

1285	F 1	15SE1964	0.00582	)	1389	GS13	12MY1967	0.00258	)	1396	GS20	13MY1967	C.0C074
1565	GS13	50C1967	0.01014	)	1567	GS15	50C1967	C.00159	)	1571	GS19	6CC1967	C.00059
1550	MR 1	50C1967	0.01239	)									

Navicula zanoni Hust.

Navicula zanoni Hustedt, Inst. Parcs Nat. Congo Belge, Expl. Parc. Nat. Albert, (Damas 1935-1936), Facs. 8:92, pl. 5, figs. 1-5. 1949.

485 NASPECGE TCT NC OF STATIONS 35

146923	CH	22NO1946	0.00219	)	1229	D 5	14MY1964	0.00423	)	1439	B 6	5JN1964	C.CC200
1244	F 1	11JN1964	0.0C987	)	1245	F 2	11JN1964	0.01383	)	1246	F 3	11JN1964	C.C1793
1256	E 2	14JL1964	0.01282	)	1258	F 1	6JL1964	C.00944	)	1259	F 2	6JL1964	C.02479
1260	F 3	6JL1964	0.02674	)	1268	E 2	15AU1964	0.00274	)	1284	E 6	17SE1964	0.00635
1285	F 1	15SE1964	0.01747	)	1287	F 3	15SE1964	C.00500	)	1302	E 5	13OC1964	C.0C405
1305	F 2	11OC1964	0.00173	)	1323	F 1	6NO1964	C.00418	)	1324	F 2	6NO1964	C.00466
1346	C 7	21AP1967	C.00134	)	1381	GS 5	10MY1967	C.00239	)	1383	GS 7	10MY1967	C.0C535
1388	GS12	12MY1967	0.02413	)	1390	GS14	12MY1967	C.02936	)	1393	GS17	13MY1967	C.01096
1394	GS18	13MY1967	C.00688	)	1564	GS12	5CC1967	C.00165	)	1566	GS14	5CC1967	C.CC183
1567	GS15	50C1967	0.00159	)	1547	MS 1	20C1967	0.00798	)	1546	LU 1	20C1967	C.0C500
1520	MO 1	18SE1967	0.0C471	)	1527	TR 1	20SE1967	C.CC629	)	1545	WL 1	20C1967	C.CC676
1426	MS 2	29MY1967	0.01050	)	1403	CA 2	10MY1967	0.05231	)				

Species *incertae sedis*

Navicula (viridula var.?)

477 NAVIRIVB TCT NC OF STATIONS 4

(1521	SH 1	18SE1967	0.00577)	(1522	BH 1	18SE1967	0.02370)	(1550	PR 1	50C1967	C.01239)			
(1417	MO 2	22MY1967	0.00374)	(										

Navicula (*tuscula* var. 1)

468 NATUSCVA TCT NC OF STATIONS 1

(1388	GS12	12MY1967	0.00603)	(

Navicula (*tuscula* var. 3)

471 NATUSCFR TCT NO OF STATIONS 5

146758	EV	5JN1937	0.00357)	146764	EV	17JL1937	C.01612)	(1574	GS22	6DC1967	C.00288)
(1527	TR 1	20SE1967	0.00629)	(1350	BH 2	19AP1967	0.00220)	(			

Navicula sp. (aff. N. *lacustris*)

397 NALACUSG TCT NO OF STATIONS 12

146924	CH	16MY1946	0.00071)	146520	CH	20DE1946	0.00031)	146916	CH	4MY1947	C.00034)
146906	CH	MY1947	0.00133)	146922	CH	21AU1947	0.00388)	(1544	MU 1	20DC1967	0.00238)
(1546	LU 1	2DC1967	0.01000)	(1521	SH 1	18SE1967	0.00577)	(1527	TR 1	20SE1967	C.04918)
(1529	KW 1	20SE1967	0.01199)	(1402	TR 2	6MY1967	0.00541)	(1429	WL 2	29MY1967	C.01062)

Navicula "*pygmaea* var. *producta*" (not validly described)

435 NAPYGPVP TCT NO OF STATIONS 3

(1264	C* 1	10AU1964	0.00193)	(1533	A 4	19SE1967	C.00464)	(1396	GS2C	13MY1967	C.00074)

Navicula sp. #3.

483 NASPECOC TCT NC OF STATIONS 1

(1265	C* 2	10AU1964	0.00224)	(

Navicula sp. #4.

484 NASPECOD TCT NO OF STATIONS 3

(1388	GS12	12MY1967	0.00603)	(1565	GS13	5DC1967	C.02028)	(1566	GS14	5DC1967	C.00183)

Navicula sp. #8.

486 NASPECOH TCT NC OF STATIONS 11

146907	CH	JL1947	0.00049)	(1304	F 1	11DC1964	C.00247)	(1356	GS2D	13MY1967	C.00074)
(1545	WL 1	2DC1967	0.10812)	(1552	SP 1	6DC1967	C.01321)	(1550	PR 1	5DC1967	C.03717)
(1428	MU 2	29MY1967	0.00301)	(1426	MS 2	29MY1967	C.01050)	(1427	LU 2	29MY1967	C.04093)
(1350	BH 2	19AP1967	0.01542)	(1402	TR 2	6MY1967	C.02707)	(			

Navicula sp. #10.

488 NASPECOJ TCT NC OF STATIONS 1

(1343	A 6	19AP1967	C.00069)	(

Navicula sp. #12.

490 NASPECOL TCT NC OF STATIONS 37

146919	CH	5JN1947	0.27162)	146758	EV	5JN1937	C.00713)	146743	EV	20JN1937	C.00428)
146770	EV	9JL1937	0.02385)	146764	EV	17JL1937	0.20951)	146757	EV	25JL1937	C.12036)
146747	EV	1AU1937	C.00742)	146763	EV	23AU1937	C.16234)	146752	EV	15SE1937	C.17414)
146750	EV	24SE1937	0.01414)	146748	EV	13OC1937	C.10675)	146767	EV	27OC1937	C.01160)
146749	EV	12MR1938	0.01214)	146768	EV	16MR1938	C.10290)	146762	EV	18MR1938	C.C2206)
146751	EV	30MR1938	0.01117)	146761	EV	27MY1938	C.00818)	(1258	F 1	6JL1964	0.00472)
(1260	F 3	6JL1964	0.00191)	(1540	C 5	4DC1967	C.00496)	(1541	E 2	11DC1967	C.01597)

(1387	GS11	12MY1967	0.00396)	(1394	GS18	13MY1967	0.00172)	(1556	GS 1	30C1967	C.CC356)
(1559	GS 7	40C1967	0.00350)	(1565	GS13	50C1967	0.01014)	(1574	GS22	60C1967	C.00863)
(1544	MU 1	20C1967	0.00715)	(1547	MS 1	20C1967	0.00798)	(1546	LU 1	20C1967	C.04001)
(1526	MO 1	20SE1967	0.01138)	(1527	TR 1	20SE1967	0.00629)	(1529	RW 1	20SE1967	C.02398)
(1545	WL 1	2CC1967	0.02703)	(1551	ES 1	50C1967	0.01598)	(1552	SM 1	60C1967	C.CC660)
(1550	MR 1	50C1967	0.02478)	(							

Navicula sp. #13.

491 NASPECCP TOT NO OF STATIONS 5

146747	EV	1AU1937	0.00248)	(1285	F 1	15SE1964	0.00582)	(1565	GS13	50C1967	C.01521)
(1527	TR 1	20SE1967	0.00629)	(1403	CA 2	10MY1967	0.01308)	(			

Navicula sp. #14.

492 NASPECCN TOT NO OF STATIONS 2

(1286	F 2	15SE1964	0.01095)	(1527	TR 1	20SE1967	0.01258) (

Navicula sp. #15.

493 NASPECCO TOT NO OF STATIONS 1

(1522	BM 1	18SE1967	0.00547)	(

Navicula sp. #18.

495 NASPECCR TOT NO OF STATIONS 1

(1545	WL 1	2CC1967	0.CC626)	(

Navicula sp. #19.

496 NASPECCS TOT NO OF STATIONS 27

146921	CH	23NO1945	C.00065)	146517	CH	12JA1946	0.00166)	146915	CH	20FE1946	C.CC569)
146914	CH	19AP1946	0.00107)	146524	CH	10MY1946	0.00141)	146923	CH	22NO1946	0.00219)
14692C	CH	20DE1946	0.00092)	146519	CH	5JN1947	0.00455)	146922	CH	21AU1947	0.00145)
146764	EV	17JL1937	0.00806)	146747	EV	1AU1937	C.00248)	146763	EV	23AU1937	C.02029)
146744	EV	6DC1937	0.00975)	146768	EV	16MR1938	0.01470)	146762	EV	18MR1938	C.02206)
(1387	GS11	12MY1967	0.00396)	(1388	GS12	12MY1967	C.00603)	(1556	GS 3	30C1967	C.00521)
(1565	GS13	5CC1967	C.02028)	(1566	GS14	50C1967	0.00183)	(1567	GS15	50C1967	C.CC159)
(1574	GS22	60C1967	0.01151)	(1546	LU 1	20C1967	C.02001)	(1531	GM 1	25SE1967	0.00845)
(1550	MR 1	50C1967	0.01239)	(1351	PI 2	21AP1967	0.00310)	(1350	BM 2	19AP1967	C.CC220)

Navicula sp. #22.

498 NASPECCV TOT NO OF STATIONS 2

146906	CH	MY1947	0.00066)	(1285	F 1	15SE1964	0.00582)	(

Navicula sp. #23.

499 NASPECCW TOT NO OF STATIONS 15

146758	EV	5JN1937	0.00713)	146764	EV	17JL1937	C.00806)	146763	EV	23AU1937	C.1C146)
146750	EV	24SE1937	0.00471)	146767	EV	27DC1937	0.00387)	146762	EV	18MR1938	C.06617)
(1451	C 7	16JL1967	C.CC197)	(1542	E 3	11CC1967	C.00509)	(1546	LU 1	20C1967	C.C1000)
(1545	WL 1	2CC1967	0.08109)	(1556	MR 1	5CC1967	C.01239)	(1426	PS 2	29MY1967	C.02100)
(1354	GM 2	25AP1967	0.00173)	(1407	SP 2	14MY1967	C.00597)	(1423	WA 2	25MY1967	C.CC428)

Navicula sp. #24.

500 NASPECCX TOT NO OF STATIONS 5

146917	CH	12JA1946	0.00028)	146907	CH	JL1947	C.00C49)	146743	EV	20JN1937	C.CC428)
(1537	E 3	24SE1967	0.00931)	(1541	E 2	11CC1967	C.00532)	(			

Navicula sp. #25.

501 NASPECCY TOT NO OF STATIONS 1

(1541 E 2 11OC1967 0.00532) (

Navicula sp. #26.

502 NASPECOZ TOT NO OF STATIONS 1

146906 CH MY1947 C.00066) (

Navicula sp. #27.

503 NASPECAA TOT NO OF STATIONS 5

146910	CH	OC1945	0.00109)	146764	EV	17JL1937	C.01612)	146763	EV	23AU1937	C.04058)			
(1390	GS14	12MY1567	0.00587)	(1545	WL 1	2OC1967	0.00676)	(						

Navicula sp. #29.

504 NASPECAC TOT NO OF STATIONS 4

146757	EV	25JL1937	0.00481)	146752	EV	15SE1937	C.02177)	146768	EV	16MR1938	C.01470)
(1544	MU 1	2OC1967	0.00953)	(							

Navicula sp. #30.

505 NASPECAD TOT NO OF STATIONS 1

146757 EV 25JL1937 C.00481) (

Navicula sp. #31.

506 NASPECAE TOT NO OF STATIONS 1

146758 EV 5JA1937 0.00357) (

Navicula sp. #32.

507 NASPECAF TOT NO OF STATIONS 1

146767 EV 27OC1937 0.00387) (

Navicula sp. #33.

508 NASPECAG TOT NO OF STATIONS 1

146763 EV 23AU1937 0.02629) (

Navicula sp. #34.

509 NASPECAH TOT NO OF STATIONS 6

(1389	GS13	12MY1567	C.00258)	(1574	GS22	4OC1967	0.00288)	(1550	PR 1	5OC1967	C.01239)
(1350	BH 2	19AP1967	0.00220)	(1400	SB 2	6MY1967	0.00596)	(1429	WL 2	29MY1967	C.01062)

Navicula sp. #35.

510 NASPECAI TOT NO OF STATIONS 1

(1554 GS 1 3CC1967 0.00358) (

Navicula sp. #36.

511 NASPECAJ TOT NO OF STATIONS 2

(1565 GS13 5OC1967 0.01014) (1546 LU 1 2OC1967 C.00500) (

Navicula sp. #37.

512 NASPECAK TCT NO OF STATIONS 1

(1565 GS13 50C1967 0.00507) (

Navicula sp. #38.

513 NASPECAL TCT NO OF STATIONS 2

(1565 GS13 50C1967 C.04C56) (1350 BH 2 19AP1967 0.00661) (

Navicula sp. #39.

514 NASPECAM TCT NO OF STATIONS 2

(1565 GS13 50C1967 0.01521) (1350 BH 2 19AP1967 0.00441) (

Navicula sp. #40.

515 NASPECAN TCT NO OF STATIONS 3

(1567 GS15 50C1967 0.00159) (1426 MS 2 29MY1967 C.01050) (1354 GH 2 25AP1967 C.00173)

Navicula sp. #41.

516 NASPECAC TCT NO OF STATIONS 1

(1574 GS22 60C1967 0.00288) (

Navicula sp. #42.

517 NASPECAP TCT NO OF STATIONS 1

(1546 LU 1 2CC1967 0.CC50C) (

Navicula sp. #43.

518 NASPECAQ TCT NO OF STATIONS 6

(1526 PO 1 20SE1967 0.00569) (1527 TR 1 20SE1967 C.00629) (1550 MR 1 50C1967 C.03717)
(1417 HO 2 22MY1567 0.00374) (1350 BH 2 19AP1967 C.00220) (1402 TR 2 6MY1967 C.00541)

Navicula sp. #44.

519 NASPECAR TCT NO OF STATIONS 2

(1545 WL 1 2CC1967 C.10136) (1350 BH 2 15AP1567 C.00220) (

Navicula sp. #45.

520 NASPECAS TCT NO OF STATIONS 1

(1545 WL 1 2CC1967 0.CC676) (

Navicula sp. #46.

521 NASPECAT TCT NO OF STATIONS 2

(1545 WL 1 2CC1567 C.CC676) (1350 BH 2 15AP1967 0.00220) (

Navicula sp. #47.

522 NASPECAU TCT NO OF STATIONS 1

(1550 MR 1 50C1567 0.01239) (

Navicula sp. #48.

523 NASPECAV TCT NO OF STATIONS 1

(1550 MR 1 50C1967 0.01239) (

Navicula sp. #49.

524 NASPECAW TOT NO OF STATIONS 1

(1550 MR 1 5OC1967 0.04556) (

Navicula sp. #50.

525 NASPECAX TOT NO OF STATIONS 1

(1550 MR 1 5OC1967 0.01235) (

Navicula sp. #53.

527 NASPECBA TOT NO OF STATIONS 1

(1350 BH 2 15AP1967 0.00441) (

Navicula sp. #54.

528 NASPECBB TOT NO OF STATIONS 2

(1350 BH 2 15AP1967 0.00220) (1405 ES 2 12MY1967 0.00649) (

Navicula sp. #55.

529 NASPECBC TOT NO OF STATIONS 2

(1422 GA 2 23MY1967 0.01022) (1423 WA 2 25MY1967 0.00428) (

Genus *Neidium* Pfitz.

Pfitzer, Bot. Abh. Geb. Morph. Physiol., 1(2):39. 1871.

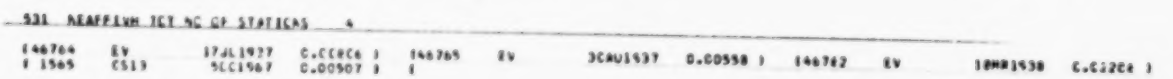
In most instances members of the genus *Neidium* comprise a minor component of epipelic communities in freshwater. Probably none of the species may be classified as euplanktonic but occasional specimens are found in plankton collections. Members of the genus are very rare in our collections, and those noted come from nearshore localities.

Neidium affine (Ehr.) Pfitz.

Navicula affinis Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:417, pl. 2(2), fig. 7. 1843.
Neidium affine (Ehr.) Pfitzer, Bot. Abh. Geb. Morph. Physiol., 1(2):39. 1871.

Neidium affine var. *humerus* Reim.

Neidium affine var. *humerus* Reimer, Proc. Acad. Nat. Sci. Philadelphia, 111:12, pl. 4, fig. 3. 1959.

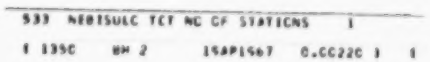


Neidium binode (Ehr.) Hust.

Navicula binodis Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:212. 1840.
Neidium binodis (Ehr.) Hustedt, Arch. Hydrobiol., 40:933. 1945.

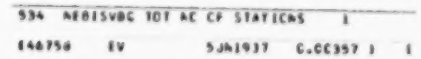
Neidium bisulcatum (Lagerst.) Cleve

Navicula bisulcata Lagerstedt, Bih. K. Svenska Vet.-Akad. Handl., 1(14):31, pl. 1, fig. 8. 1873.
Neidium bisulcatum (Largerst.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):68. 1894.



Neidium bisulcatum var. *baicalense* (Skv. and Meyer) Reim.

Neidium bisulcatum fo. *baicalensis* Skvortzow and Meyer, Proc. Sungaree River Biol. Sta., 1(5):14, pl. 1, fig. 50. 1928.
Neidium bisulcatum var. *baicalensis* (Skv. and Meyer) Reimer, Proc. Acad. Nat. Sci. Philadelphia, 111:18, pl. 2, fig. 2. 1959.



Neidium calvum Østr.

Neidium calvum Østrup, Danske Diat., p. 20, pl. 1, fig. 11. 1910.

535 NECALVUP TOT NO OF STATIONS 1

(46760 EV 22SE1937 0.00492) (

Neidium dubium (Ehr.) Cleve

Navicula dubia Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:418, pl. 2(2), fig. 8. 1843.
Neidium dubium (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):70. 1894.

536 NEDUBIUM TOT NO OF STATIONS 3

(46909 CH MR1947 0.00455) (1258 F 1 6JL1964 0.00236) (1522 BH 1 18SE1967 0.00182)

Neidium dubium fo. *constrictum* Hust.

Neidium dubium fo. *constricta* Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 246, fig. 384b. 1930.

537 NEDUBIFC TOT NO OF STATIONS 9

(3540 CH 11MY1879 0.00466) (46758 EV 5JN1937 0.00713) (46728 EV 12MR1938 0.01470)
(46756 EV 27AP1938 0.00168) (1240 D 6 10JN1964 0.00153) (1568 GS16 5OC1967 0.00144)
(1574 GS22 6OC1967 0.01151) (1427 LU 2 29MY1967 0.01211) (1407 SM 2 14MY1967 0.00597)

Neidium iridis (Ehr.) Cleve

Navicula iridis Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:418, pl. 4(1), fig. 2. 1843.
Neidium iridis (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):69. 1894.

538 NEIRIDIS TOT NO OF STATIONS 1

(1426 MS 2 29MY1967 0.01050) (

Neidium iridis var. *amphigomphus* (Ehr.) A. Mayer

Navicula amphigomphus Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:417, pl. 3(1), fig. 8. 1843.
Neidium iridis var. *amphigomphus* (Ehr.) A. Mayer. Denkschr. Bayer. Bot. Ges. Regensburg, 13:30. 1917.

539 NEIRIDVA TOT NO OF STATIONS 1

(1567 GS15 5OC1967 0.00155) (

Neidium iridis var. *vernalis* Reichelt

Neidium iridis var. *vernalis* Reichelt, Sitzungsber. Naturf. Ges. Leipzig, 24:8. 1897.

540 NESPECOB TOT NO OF STATIONS 8

(46915 CH 20FE1946 0.00569) (46909 CH MR1947 0.00911) (46907 CH JL1947 0.00049)
(46758 EV 5JN1937 0.00357) (46764 EV 17JL1937 0.00806) (46757 EV 25JL1937 0.00481)
(46747 EV 1AU1937 0.00743) (1565 GS13 5OC1967 0.00507) (

Neidium kozlowi Mereschk.

Neidium kozlowi Mereschkowsky, Arb. Exped. Kais. Russischen Geogr. Ges., 1899-1901, Vol. 8, p. 16, fig. 7. 1906.

544 NESPECOF TOT NO OF STATIONS 1

(1388 GS12 12MY1967 0.00603) (

Neidium ladogense (Cleve) comb. nov.

Navicula ladogensis Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):35, pl. 2, fig. 3. 1891.

Coll: 1388.

Neidium sacoense Reim.

Neidium sacoense Reimer *in*: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:402, pl. 37, fig. 3. 1966.

Coll: 1813.

Species *incertae sedis*

Neidium sp. #3.

541 NESPECCC TOT NO OF STATIONS 18

(6C973	CH	1E76	C.04724)	(3541	CP	1FE1881	C.00578)	146523	CH	22ND1944	C.CC219)
(46920	CH	20DL1946	0.00031)	(46758	EV	5JN1937	C.00713)	(46770	EV	9JL1937	C.0C596)
(46757	EV	25JL1937	C.0C481)	(46763	EV	23AU1537	C.04058)	146752	EV	15SE1937	C.02177)
(1541	E 2	11CC1967	C.00532)	(1571	GS19	6OC1967	C.00059)	(1575	GS28	6OC1967	C.CC129)
(1544	MU 1	2CC1967	0.00238)	(1521	SM 1	18SE1967	C.CC577)	(1527	TR 1	2CSE1967	C.02516)
(1530	PR 1	24SE1967	C.C1000)	(1545	WL 1	2CC1967	C.00676)	(1553	SG 1	6CC1967	C.CC734)

Neidium sp. #4.

542 NESPECCD TOT NO OF STATIONS 2

146742	EV	14JL19.7	0.0C248)	146768	EV	16MR1538	C.C1470) (

Neidium sp. #5.

543 NESPECGE TOT NO OF STATIONS 1

146769	EV	17JL1537	C.CC8C6)	(

Genus *Nitzschia* Hass.

Hassall, Hist. British Freshw. Alg., Vol. 1, p. 435. 1845.

The members of the genus *Nitzschia* occurring in Lake Michigan are found in a variety of habitats. Although the greatest number of species are found in benthic environments, a number of species are apparently euplanktonic. Besides the euplanktonic species, many of the entities that find their primary habitat in epipelic communities are successful facultative planktonts and are regularly taken in plankton collections, usually in low numbers.

Nitzschia acicularis (Kützing) Wm. Smith

Synedra acicularis Kützing, Bacill., p. 63, pl. 4, fig. 3. 1844.
Nitzschia acicularis (Kütz.) Wm. Smith, Syn. British Diat., Vol. 1, p. 39, pl. 13, fig. 108. 1853.

545 NIACICUL TOT NO OF STATIONS 25

146906	CH	MY1967	C.00066)	146764	EV	17JL1937	0.02417)	(1231	E 3	16MY1564	C.CC489)
(1439	B 6	5JN1964	0.00799)	(1238	D 3	11JN1964	C.00400)	(1241	E 2	13JN1964	C.CC148)
(1243	E 6	13JN1964	0.00209)	(1246	F 3	11JN1964	C.CC598)	(1252	C* 1	16JL1564	C.0C279)
(1257	E 3	14JL1964	0.00479)	(1258	F 1	6JL1964	0.00944)	(1259	F 2	6JL1964	0.01549)
(1260	F 3	6JL1964	0.00191)	(1340	C 7	28MR1567	C.00073)	(1449	C 3	16JL1967	C.00382)
(1450	C 5	16JL1967	0.00190)	(1546	LU 1	20C1967	0.00500)	(1551	ES 1	5OC1967	C.00799)
(1550	MR 1	5CC1967	0.C3717)	(1426	MS 2	29MY1967	C.01050)	(1350	BM 2	15AP1967	C.CC22C)
(1401	MO 2	6MY1967	0.01176)	(1353	FR 2	23AP1967	C.01C55)	(1354	GM 2	25AP1967	C.00345)
(1345	CI 2	19AP1967	C.0C359)	(							

Nitzschia acuta Hantz.

Nitzschia acuta Hantzsch *ex* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):90. 1880.

546 NIACUTA TOT NO OF STATIONS 124

(60973	CH	1876	0.04724)	(3541	CH	1FE1891	C.00578)	(46910	CH	0C1945	C.0C109)
(46921	CH	23N01945	0.00388)	(46917	CH	12JA1946	0.00111)	(46915	CH	20FE1946	C.C1138)
(46914	CH	19AP1946	0.00747)	(46924	CH	10MY1946	0.00282)	(46923	CH	22N01946	C.0C219)
(46920	CH	20DE1946	0.00031)	(46905	CH	JA1947	0.00123)	(469C9	CH	MR1947	C.01366)
(46916	CH	4MY1947	0.00407)	(46SC6	CH	MY1947	C.00597)	(46919	CH	5JN1947	C.01366)
(46907	CH	JL1947	0.00937)	(46S22	CH	21AU1947	0.00145)	(46758	EV	5JN1937	C.C2853)
(46771	EV	11JN1937	0.01664)	(46743	EV	20JN1937	0.02997)	(46770	EV	9JL1937	C.0C596)
(46757	EV	25JL1937	0.00481)	(46747	EV	1AU1937	0.00248)	(46756	EV	27AP1938	C.0C336)
(46759	EV	19MY1938	0.01013)	(46761	EV	27MY1938	C.01363)	(1233	B 3	5JN2964	C.C0238)
(1439	B 6	5JN1964	0.02198)	(1441	B 6	24JL1964	C.00441)	(1250	C 6	10JL1964	C.C1233)
(1252	C* 1	16JL1964	C.0C279)	(1255	C 5	15JL1964	C.00513)	(1256	E 2	14JL1964	C.C2565)
(1257	E 3	14JL1964	0.00718)	(1258	F 1	6JL1964	C.C1180)	(1259	F 2	6JL1964	C.CC930)
(1260	F *	6JL1964	0.01528)	(1271	C 7	22SE1964	C.00653)	(1284	E 6	17SE1964	C.C2542)
(1285	F 1	15SE1964	0.01747)	(1286	F 2	15SE1964	C.01095)	(1290	C* 1	16DC1964	C.CC374)
(1297	D 6	14DC1964	0.00190)	(1302	E 5	13DC1964	C.02429)	(1304	F 1	11DC1964	C.CC988)
(1305	F 2	11DC1964	C.01035)	(1306	F 3	11DC1964	C.01940)	(1311	D 1	6N01964	C.CC258)
(1319	E 3	7N01964	0.00524)	(1321	E 5	7N01964	C.00636)	(1322	E 6	7N01964	C.C2000)
(1323	F 1	6N01964	0.00279)	(1337	C 3	2MR1967	C.00147)	(1338	C 3	28MR1967	C.00529)
(1339	C 5	28MR1967	0.00624)	(1340	C 7	28MR1967	0.00436)	(1341	A 3	19AP1967	C.CC542)
(1342	A 4	19AP1967	0.00361)	(1343	A 6	19AP1967	C.00208)	(1346	C 7	21AP1967	C.00935)
(1348	E 5	23AP1967	C.CC960)	(1368	A 3	4MY1967	C.00314)	(1369	A 4	4MY1967	C.CC373)
(1370	A 6	3MY1967	0.01151)	(1372	C 5	5MY1967	0.00355)	(1374	E 2	7MY1967	C.CC299)
(1375	E 3	7MY1967	0.00241)	(1376	E 5	6MY1967	C.00281)	(1408	A 3	23MY1967	C.01342)
(1410	A 6	24MY1967	C.03383)	(1412	C 5	31MY1967	0.00421)	(1415	E 3	28MY1967	C.CC225)
(1431	A 3	12JN1967	0.00257)	(1432	A 4	13JN1967	C.00766)	(1435	C 7	13JN1967	C.00631)
(1448	A 6	10JL1967	0.00354)	(1536	E 2	24SE1967	C.00273)	(1379	GS 3	9MY1967	C.CC309)
(1381	GS 5	10MY1967	0.00477)	(1382	GS 6	10MY1967	C.00833)	(1383	GS 7	10MY1967	C.C1604)
(1386	GS10	12MY1967	0.00287)	(1387	GS11	12MY1967	C.01584)	(1388	GS12	12MY1967	C.CC603)
(1389	GS13	12MY1967	0.00516)	(1390	GS14	12MY1967	0.00587)	(1391	GS15	12MY1967	C.CC479)
(1393	GS17	13MY1967	C.01096)	(1394	GS18	13MY1967	0.02580)	(1395	GS19	13MY1967	C.CC705)
(1397	GS21	13MY1967	0.00327)	(1555	GS 2	3DC1967	0.00353)	(1557	GS 4	3DC1967	C.00747)
(1559	GS 7	4DC1967	0.00350)	(1560	GS 8	4DC1967	C.00472)	(1568	GS16	5DC1967	C.CC289)
(1569	GS17	5DC1967	0.00149)	(1544	MC 1	2CC1967	0.00477)	(1520	MO 1	18SE1967	C.CC471)
(1528	SB 1	2CSE1967	0.01444)	(1551	ES 1	5DC1967	C.01598)	(1552	SM 1	6DC1967	C.CC660)
(1550	MR 1	5CC1967	C.18585)	(1553	SG 1	6CC1967	0.00734)	(1426	MS 2	29MY1967	C.C2100)
(1427	LU 2	29MY1967	0.01211)	(1417	MO 2	22MY1967	C.01495)	(1425	RA 2	25MY1967	C.C1768)
(1399	PM 2	5MY1967	0.00680)	(1401	MO 2	6MY1967	0.00588)	(1402	TR 2	6MY1967	C.00541)
(1400	SB 2	6MY1967	0.02383)	(1352	KB 2	21AP1967	C.02577)	(1429	WL 2	25MY1967	C.C3185)
(1403	CA 2	1CMY1967	C.17000)	(1404	MC 2	10MY1967	C.01270)	(1405	ES 2	12MY1967	C.02580)
(1407	SM 2	14MY1967	0.00597)	(1349	CI 2	19AP1967	C.01078)	(1406	GB 2	13MY1967	0.01078)
(1421	CH 2	23MY1967	0.01735)	(1422	GA 2	23MY1967	C.04598)	(1423	WA 2	25MY1967	C.0C428)
(1424	KN 2	25MY1967	0.01332)	(							

Nitzschia amphibia Grun.

Nitzschia amphibia Grunow, Verh. Zool.-Bot. Ges. Wien, 12:574, pl. 18, fig. 23. 1862.

547 NIAMPHIB TOT NO OF STATIONS 52

(46910	CH	0C1945	0.00328)	(46921	CH	23N01945	C.00388)	(46915	CH	20FE1946	C.C2845)
(46914	CH	19AP1946	0.00320)	(46924	CH	10MY1946	0.00141)	(46923	CH	22N01946	C.01530)
(46920	CH	20DE1946	0.0C185)	(46SC5	CH	JA1947	0.00123)	(469C9	CH	MR1947	C.CC511)
(46916	CH	4MY1947	0.00068)	(46SC6	CH	MY1947	C.00066)	(46919	CH	5JN1947	C.0C455)
(469C7	CH	JL1947	0.0C296)	(46S22	CH	21AU1947	C.C1018)	(46758	EV	5JN1937	C.C2140)
(46743	EV	20JN1937	0.0C428)	(46770	EV	9JL1937	C.00596)	(46764	EV	17JL1937	C.12893)
(46757	EV	25JL1937	0.18295)	(46747	EV	1AU1937	C.05446)	(46763	EV	23AU1937	C.4C584)
(46765	EV	30AU1937	0.02789)	(46752	EV	15SE1937	C.13061)	(46760	EV	22SE1937	C.CC985)
(46750	EV	24SE1937	0.0C471)	(46748	EV	13OC1937	C.10675)	(46768	EV	16MR1938	C.17639)
(46762	EV	18MR1938	0.15439)	(46766	EV	14DE1938	C.03169)	(1243	E 6	13JN1964	C.00209)
(1252	C* 1	16JL1964	0.00279)	(1279	E 1	16SE1964	C.00393)	(1284	E 6	17SE1964	C.CC318)
(1343	A 6	19AP1967	0.0C069)	(1383	GS 7	10MY1967	C.00267)	(1557	GS 4	3DC1967	C.0C374)
(1559	GS 7	4DC1967	0.00350)	(1566	GS14	5DC1967	C.00183)	(1573	GS21	6CC1967	C.CC112)
(1546	LU 1	2CC1967	0.0C50C)	(1522	BH 1	18SE1967	C.00365)	(1527	TR 1	2CSE1967	C.C1258)
(1545	WL 1	2CC1967	0.0C676)	(1549	MC 1	4CC1967	C.01370)	(1550	MR 1	5DC1967	C.11151)
(1553	SG 1	6DC1967	C.01469)	(1428	MO 2	29MY1967	C.00301)	(1426	MS 2	29MY1967	C.C1C5C)
(1417	MO 2	22MY1967	0.00374)	(1350	BH 2	19AP1967	C.07048)	(1407	SM 2	14MY1967	C.0C597)
(1406	GB 2	13MY1967	0.0C270)	(							

Nitzschia amphibia var. *fossilis* Grun.

Nitzschia amphibia var. *fossilis* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):98. 1880.

549 NIAMPHVG TOT NO OF STATIONS 3

(46747	EV	1AU1937	C.0C248)	(1574	GS22	6CC1967	0.00288)	(1550	MR 1	5DC1967	C.C1239)

Nitzschia angustata (Wm. Smith) Grun.

Tryblionella angustata Wm. Smith, Syn. British Diat., Vol. 1, p. 36, suppl. pl. 30, fig. 262. 1853.
Nitzschia angustata (Wm. Smith) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):70. 1880.

550 NIANGUST TOT NO OF STATIONS 75

(46973	CH	1876	0.11805)	(3540	CH	11MY1875	0.02796)	(3541	CH	1FE1881	0.28367)
(3507	CH	19FE1881	0.03396)	(46521	CH	23NO1945	0.02199)	(46917	CH	12JA1946	C.00471)
(46915	CH	20FE1946	0.01707)	(46914	CH	19AP1946	0.00747)	(46924	CH	10MY1946	C.00494)
(46923	CH	22NO1946	0.06338)	(46520	CH	20DE1946	0.01356)	(46905	CH	JA1947	C.00735)
(46909	CH	MR1947	C.01821)	(46516	CH	4MY1947	C.00170)	(46906	CH	MY1947	C.CC996)
(46919	CH	5JN1947	0.02731)	(46507	CH	JL1947	0.01183)	(46922	CH	21AU1947	C.01648)
(46758	EV	5JN1937	0.0C357)	(46743	EV	20JN1937	0.00856)	(46764	EV	17JL1937	C.02223)
(46757	EV	25JL1937	0.0C963)	(46747	EV	1AU1937	C.00990)	(46763	EV	23AU1937	C.30438)
(46752	EV	15SE1937	0.08707)	(46760	EV	22SE1937	0.01477)	(46750	EV	24SE1937	C.04713)
(46744	EV	6DC1937	0.01463)	(46748	EV	13CC1937	0.04270)	(46767	EV	27DC1937	C.04255)
(46768	EV	16MR1938	C.C2940)	(46762	EV	18MR1938	C.28672)	(46756	EV	27AP1938	C.CC168)
(1228	D 2	14MY1964	0.CC195)	(1258	F 1	6JL1964	C.00236)	(1259	F 2	6JL1964	C.00310)
(1264	C' 1	10AU1964	0.00193)	(1275	E 1	16SE1964	0.00393)	(1284	E 6	17SE1964	C.CC318)
(1285	F 1	15SE1964	0.05241)	(1297	D 6	14CC1964	C.00190)	(1300	E 3	13DC1964	C.00358)
(1303	E 6	13DC1964	0.00560)	(1306	F 1	11DC1964	C.00494)	(1322	E 6	7NC1964	C.CC333)
(1337	C 3	2MR1967	0.00147)	(1387	GS11	12MY1967	0.00396)	(1388	GS12	12MY1967	C.0C403)
(1390	GS14	12MY1967	0.01174)	(1391	GS15	12MY1967	0.00479)	(1398	GS22	14MY1967	0.00304)
(1557	GS 4	3DC1967	0.00374)	(1567	GS15	5CC1967	0.00159)	(1572	GS20	6DC1967	C.CC09C)
(1574	GS22	6CC1967	0.0C863)	(1526	MQ 1	2CSE1967	0.00569)	(1527	TR 1	20SE1967	0.00629)
(1529	KW 1	20SE1967	0.01199)	(1549	MQ 1	4DC1967	0.01370)	(1552	SM 1	6DC1967	C.01981)
(1550	MR 1	5DC1967	0.02478)	(1553	SG 1	6CC1967	0.01469)	(1426	PS 2	29MY1967	C.02100)
(1350	BH 2	19AP1967	0.00220)	(1401	MQ 2	6MY1967	0.00588)	(1402	TR 2	6MY1967	C.00541)
(1400	SB 2	6MY1967	0.0C596)	(1403	CA 2	10MY1967	0.06539)	(1404	MQ 2	10MY1967	C.0127C)
(1407	SM 2	14MY1967	0.01791)	(1349	CI 2	19AP1967	0.00359)	(1419	BU 2	23MY1967	C.01831)
(1421	CH 2	23MY1967	0.01735)	(1422	GA 2	23MY1967	0.00511)	(1423	WA 2	25MY1967	C.CC428)

Nitzschia angustata var. *acuta* Grun.

Nitzschia angustata var. *acuta* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):70. 1880.

551 NIANGUVA TOT NO OF STATIONS 5

(46920	CH	20DE1946	0.00062)	(46519	CH	5JN1947	C.00303)	(1244	F 1	11JN1964	C.00219)
(1541	E 2	11DC1967	0.00532)	(1556	GS 3	3DC1967	0.00521)	(			

Nitzschia apiculata (Greg.) Grun.

Tryblionella apiculata Gregory, Trans. Micr. Soc. (London), n. s., 4:79, pl. 1, fig. 43. 1857.
Nitzschia apiculata (Greg.) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):73. 1880.

552 NIAPICUL TOT NO OF STATIONS 1

(1406	GB 2	13MY1967	0.CC27C)

Nitzschia bacata Hust.

Nitzschia bacata Hustedt, Arch. Hydrobiol. Suppl., 15(3):485, pl. 41, figs. 30-33. 1938.

553 NIBACATA TOT NO OF STATIONS 188

(60973	CH	1876	0.02362)	(46516	CH	OC1945	0.00218)	(46921	CH	23NO1945	C.CC323)
(46917	CH	12JA1946	0.00166)	(46515	CH	20FE1946	0.01707)	(46914	CH	19AP1946	0.00641)
(46924	CH	10MY1946	0.00141)	(46520	CH	20DE1946	0.00031)	(46909	CH	MR1947	C.CC911)
(46916	CH	4MY1947	0.00204)	(46506	CH	MY1947	0.11880)	(46919	CH	5JN1947	C.14112)
(46907	CH	JL1947	0.32052)	(46522	CH	21AU1947	C.00436)	(46758	EV	5JN1937	C.0C357)
(46771	EV	11JN1937	0.02140)	(46743	EV	20JN1937	0.03426)	(46764	EV	17JL1937	C.9C250)
(46757	EV	25JL1937	0.01926)	(46747	EV	1AU1937	C.C1980)	(46763	EV	23AU1937	C.08117)
(46744	EV	6DC1937	0.01463)	(46748	EV	13DC1937	0.02135)	(46767	EV	27DC1937	C.00387)
(46745	EV	12MR1938	0.01214)	(46756	EV	27AP1938	0.00672)	(46759	EV	19MY1938	C.CC338)
(46761	EV	27MY1938	0.0C273)	(46766	EV	14DE1938	0.03169)	(1224	B 4	18MY1964	0.C1961)
(1225	C 6	15MY1964	0.C2352)	(1226	C 7	16MY1964	C.05327)	(1227	C' 2	13MY1964	0.CC548)
(1228	D 2	14MY1964	0.14403)	(1229	D 5	14MY1964	0.11207)	(1230	E 2	16MY1964	C.41488)
(1231	E 3	16MY1964	0.34243)	(1232	E 5	16MY1964	C.73046)	(1233	B 3	5JN2964	0.01429)
(1234	B 3	18JN1964	0.00562)	(1235	C 7	16JN1964	C.00847)	(1439	B 6	5JN1964	0.12787)
(1236	C' 1	8JN1964	0.C1050)	(1237	C' 2	8JN1964	0.06445)	(1238	D 3	11JN1964	C.386CC)
(1239	D 4	11JN1964	0.00696)	(1240	D 6	10JN1964	0.04909)	(1241	E 2	13JN1964	C.06062)
(1242	E 3	13JN1964	0.01049)	(1243	E 6	13JN1964	0.15451)	(1244	F 1	11JN1964	C.CC031)
(1245	F 2	11JN1964	0.12102)	(1246	F 3	11JN1964	C.12550)	(1248	B 3	24JL1964	C.0C197)
(1440	B 6	11JL1964	0.01106)	(1441	B 6	24JL1964	0.00220)	(1250	C 6	10JL1964	0.01644)
(1252	C' 1	16JL1964	0.0C279)	(1253	C' 2	16JL1964	0.00456)	(1254	D 2	15JL1964	C.0E044)
(1255	D 5	15JL1964	0.02053)	(1256	E 2	14JL1964	0.19785)	(1257	E 3	14JL1964	C.24405)
(1258	F 1	6JL1964	0.15103)	(1259	F 2	6JL1964	0.02169)	(1260	F 3	6JL1964	C.C2101)
(1261	B 3	2AU1964	0.00196)	(1265	C' 2	10AU1964	0.00224)	(1266	D 3	18AU1964	C.0C351)
(1268	E 2	15AU1964	0.03009)	(1269	E 3	15AU1964	0.17267)	(1270	F 1	10AU1964	C.0C272)
(1271	C 7	22SE1964	0.01306)	(1280	E 2	16SE1964	0.00681)	(1281	E 3	16SE1964	C.0C785)
(1284	E 6	17SE1964	0.00318)	(1285	F 1	15SE1964	0.00582)	(1286	F 2	15SE1964	C.C2189)
(1287	F 3	15SE1964	0.00500)	(1297	D 6	14DC1964	C.00190)	(1298	E 1	12DC1964	0.00269)
(1299	E 2	12CC1964	0.00628)	(1300	E 3	13DC1964	0.00358)	(1302	E 5	13DC1964	C.CC810)
(1303	E 6	13DC1964	0.01679)	(1304	F 1	11DC1964	0.00494)	(1305	F 2	11DC1964	0.00173)
(1306	F 3	11CC1964	0.00832)	(1307	B 6	NO1964	0.00361)	(13C8	C 7	6NO1964	C.00304)

(1313	D 3	9NO.964	0.00193)	(1318	E 2	7NO1964	C.00190)	(1319	E 3	7NO1964	C.CC524)
(1322	E 6	7NO1964	0.01666)	(1336	C 3	27JA1967	0.00385)	(1337	C 3	2MR1967	C.03674)
(1338	C 3	28MR1967	0.03835)	(1339	C 5	28MR1967	C.13095)	(1340	C 7	28MR1967	C.04581)
(1341	A 3	19AP1967	0.04882)	(1342	A 4	19AP1967	0.10647)	(1343	A 6	19AP1967	C.0C347)
(1344	C 3	25AP1967	0.01158)	(1345	C 5	25AP1967	0.24755)	(1346	C 7	21AP1967	C.00534)
(1347	E 2	23AP1967	0.04178)	(1348	E 5	23AP1967	0.02647)	(1348	A 3	4MY1967	C.C2199)
(1370	A 6	3MY1967	0.00460)	(1372	C 5	5MY1967	C.01064)	(1374	E 2	7MY1967	C.0C598)
(1375	E 3	7MY1967	0.00241)	(1376	E 5	6MY1967	0.00843)	(1408	A 3	23MY1967	C.CC447)
(1409	A 4	23MY1967	0.00298)	(1410	A 6	24MY1967	0.01128)	(1412	C 5	31MY1967	C.01263)
(1415	E 3	28MY1967	0.00225)	(1416	E 5	28MY1967	0.00437)	(1432	A 4	13JN1967	C.0C255)
(1434	C 5	17JN1967	0.00299)	(1435	C 7	13JN1967	0.00316)	(1438	E 5	14JN1967	C.0C363)
(1447	A 4	11JL1967	0.00234)	(1449	C 3	10JL1967	0.01146)	(1450	C 5	10JL1967	C.CC571)
(1451	C 7	10JL1967	0.00591)	(1452	E 2	14JL1967	0.00213)	(1511	E 2	1SE1967	0.00307)
(1536	E 2	24SE1967	0.00273)	(1538	E 5	23SE1967	0.02210)	(1379	GS 3	9MY1967	C.CC309)
(1381	GS 5	10MY1967	0.01431)	(1383	GS 7	10MY1967	0.01337)	(1384	GS 8	10MY1967	C.01109)
(1386	GS10	12MY1967	0.01149)	(1387	GS11	12MY1967	C.00792)	(1361	GS15	12MY1967	C.CC958)
(1393	GS17	13MY1967	0.00822)	(1394	GS18	13MY1967	0.05505)	(1395	GS19	13MY1967	C.CC117)
(1397	GS21	13MY1967	0.00131)	(1398	GS22	14MY1967	C.C0607)	(1555	GS 2	30C1967	C.00353)
(1557	GS 4	30C1967	0.00374)	(1566	GS14	50C1967	0.00183)	(1569	GS17	50C1967	C.0C149)
(1572	GS20	60C1967	0.00090)	(1544	MU 1	20C1967	0.00238)	(1546	LU 1	20C1967	C.01000)
(1521	SM 1	18SE1967	0.01154)	(1522	BH 1	18SE1967	0.00182)	(1526	MO 1	20SE1967	C.14223)
(1527	TR 1	2CSE1967	0.04403)	(1530	FR 1	24SE1967	C.01000)	(1545	WL 1	20C1967	C.02703)
(1549	MO 1	40C1967	0.01370)	(1551	ES 1	50C1967	0.03195)	(1552	SM 1	60C1967	0.01981)
(1550	MR 1	30C1967	0.65667)	(1553	SG 1	60C1967	1.64512)	(1428	PU 2	29MY1967	C.01888)
(1426	MS 2	29MY1967	0.13648)	(1351	MI 2	21AP1967	0.06206)	(1427	LU 2	29MY1967	C.C7264)
(1417	MO 2	22MY1967	0.08599)	(1418	SM 2	22MY1967	0.01555)	(1350	BH 2	19AP1967	C.03084)
(1399	PW 2	5MY1967	0.01360)	(1401	MO 2	6MY1967	0.03528)	(1402	TR 2	6MY1967	0.02707)
(1400	SB 2	6MY1967	0.04765)	(1352	KB 2	21AP1967	0.04295)	(1353	FR 2	23AP1967	C.C1C55)
(1354	GH 2	25AP1967	0.17433)	(1429	WL 2	29MY1967	C.14864)	(1403	CA 2	10MY1967	C.31305)
(1404	MQ 2	10MY1967	0.02541)	(1405	ES 2	12MY1967	0.01935)	(1407	SM 2	14MY1967	C.C2986)
(1349	CI 2	19AP1967	0.06466)	(1406	GB 2	13MY1967	C.00539)	(1419	BU 2	23MY1967	0.03662)
(1420	IH 2	23MY1967	0.03021)	(1421	CH 2	23MY1967	0.05205)	(1422	GA 2	23MY1967	C.03065)
(1423	WA 2	25MY1967	C.CC856)	(1424	KN 2	25MY1967	0.05329)	(			

Nitzschia bulnheimiana (Rabh.) H. L. Smith

Homoeocladia bulnheimiana Rabenhorst, Alg. Sachsens resp. Mitteleuropas, No. 1301. 1871.
Nitzschia bulnheimiana (Rabh.) H. L. Smith, Diat. Sp. Typ., No. 689. 1874.

554 NIBULAMC TOT NO OF STATIONS 5

(46764	EV	17JL1937	0.05641)	(46767	EV	27OC1937	C.00774)	(1536	E 2	24SE1967	C.0C273)
(1551	ES 1	50C1967	C.00799)	(1550	MR 1	50C1967	0.01239)	(			

Nitzschia capitellata Hust.

Nitzschia capitellata Hustedt *in*: A. Schmidt, Atlas Diat., pl. 349, figs. 57-59. 1922.

555 NICAPITE TOT NO OF STATIONS 3

(1531	GH 1	25SE1967	0.03381)	(1545	WL 1	20C1967	0.01351)	(1417	MO 2	22MY1967	C.0C374)

Nitzschia confinis Hust.

Nitzschia confinis Hustedt, Inst. Parcs Nat. Congo Belge, Expl. Parc. Nat. Albert, Miss. Damas (1935-1936), Fasc. 8, p. 145, pl. 11, figs. 49-54; pl. 13, figs. 84-90. 1949.

556 NICONFIN TOT NO OF STATIONS 99

(46910	CH	0C1945	0.00109)	(46521	CH	23NO1945	C.03816)	(46908	CH	0E1945	0.02014)
(46917	CH	12JA1946	0.00166)	(46515	CH	20FE1946	0.07398)	(46914	CH	19AP1946	C.00854)
(46924	CH	10MY1946	0.C0694)	(46523	CH	22NO1946	0.10928)	(46909	CH	MR1947	C.C6375)
(46916	CH	4MY1947	0.00407)	(46506	CH	MY1947	C.00796)	(46919	CH	5JN1947	C.88770)
(46907	CH	JL1947	C.CC690)	(46513	CH	6AU1947	0.01046)	(46922	CH	21AU1947	C.1C468)
(46758	EV	5JN1937	0.0C415)	(46743	EV	20JN1937	0.04710)	(46745	EV	3JL1937	0.02090)
(46770	EV	9JL1937	0.01193)	(46764	EV	17JL1937	0.49960)	(46757	EV	25JL1937	C.C3370)
(46747	EV	1AU1937	0.05448)	(46763	EV	23AU1937	0.24351)	(46765	EV	30AU1937	C.C1115)
(46752	EV	15SE1937	0.39182)	(46760	EV	22SE1937	0.02462)	(46750	EV	24SE1937	C.41476)
(46744	EV	6OC1937	0.01951)	(46748	EV	13OC1937	0.10675)	(46767	EV	27OC1937	C.03095)
(46749	EV	12MR1938	0.01214)	(46768	EV	16MR1938	0.01470)	(46762	EV	18MR1938	C.04411)
(46751	EV	30MR1938	0.01117)	(46759	EV	19MY1938	C.00675)	(46766	EV	14DE1938	C.11090)
(1229	D 5	14MY1964	0.00211)	(1243	E 6	13JN1964	0.00209)	(1252	C' 1	16JL1964	C.C1116)
(1255	D 5	15JL1964	0.00513)	(1256	S 2	14JL1964	C.00183)	(1257	E 3	14JL1964	C.CC718)
(1258	F 1	6JL1964	0.03304)	(1259	F 2	6JL1964	0.00310)	(1260	F 3	6JL1964	C.CC382)
(1266	D 3	18AU1964	0.0C351)	(1268	E 2	15AU1964	C.01368)	(1271	C 7	22SE1964	C.CC653)
(1275	D 2	17SE1964	0.00645)	(1279	E 1	16SE1964	C.00393)	(1284	E 6	17SE1964	C.C0316)
(1285	F 1	15SE1964	0.02330)	(1288	B 3	15OC1964	0.00218)	(1445	B 6	14DC1964	C.0C652)
(1297	D 6	14CC1964	0.CC190)	(13C3	E 6	13CC1964	C.00560)	(1304	F 1	11OC1964	C.CC247)
(1307	B 6	NO1964	0.00361)	(1340	C 7	28MR1967	0.00145)	(1341	A 3	19AP1967	0.00108)
(1342	A 4	19AP1967	0.0C361)	(1243	A 6	19AP1967	C.00C69)	(1345	C 5	25AP1967	C.CC195)
(1348	E 5	23AP1967	0.00137)	(1373	C 7	5MY1967	0.00285)	(1374	E 2	7MY1967	0.00299)
(1449	C 3	16JL1967	0.00764)	(149C	C 5	16JL1967	C.00381)	(1453	E 3	15JL1967	C.CC253)
(1454	E 5	15JL1967	0.00200)	(1536	E 2	24SE1967	0.00545)	(1383	GS 7	10MY1967	C.0C267)
(1384	GS 8	10MY1967	0.0C37C)	(1387	GS11	12MY1967	C.C0396)	(1391	GS15	12MY1967	C.0C479)
(1394	GS18	13MY1967	0.00688)	(1554	GS 1	3CC1967	0.00712)	(1557	GS 4	30C1967	C.C1495)
(1560	GS 8	40C1967	C.00472)	(1562	GS1C	50C1967	C.C0247)	(1563	GS11	5CC1967	C.0C234)

(1566	GS14	5DC1967	0.00183)	(1569	GS17	5DC1967	0.00149)	(1571	GS19	6DC1967	C.CCC59)
(1573	GS21	6DC1967	0.00112)	(1574	GS22	6DC1967	0.00288)	(1526	PD 1	20SE1967	C.C1138)
(1529	KW 1	20SE1967	0.011[illegible])	(1545	WL 1	2DC1967	0.00676)	(1551	ES 1	5DC1967	C.C2396)
(1550	MR 1	5DC1967	0.09912)	(1351	MI 2	21AP1967	C.00310)	(1417	MD 2	22MY1967	C.CC374)
(1352	KW 2	21AP1967	0.00859)	(1403	CA 2	10MY1967	C.09154)	(1404	MQ 2	10MY1967	C.C127C)
(1405	ES 2	12MY1967	0.01935)	(1349	GI 2	15AP1967	C.00359)	(1422	GA 2	23MY1967	C.00511)

Nitzschia denticula Grun.

Nitzschia denticula Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):82. 1880.

558 NIDENTIC TCT NO OF STATIONS 44

(46921	CH	23NO1945	C.0C129)	(46517	CH	12JA1946	C.00028)	(46924	CH	10MY1946	C.CC141)
(46923	CH	22NO1946	0.00219)	(46520	CH	20DE1946	C.00062)	(46905	CH	JA1947	C.00245)
(46916	CH	4MY1947	0.00034)	(46SC6	CH	MY1947	C.C0133)	(46919	CH	5JN1947	C.0C152)
(46907	CH	JL1947	0.00148)	(46522	CH	21AU1947	0.00097)	(46758	EV	5JN1937	C.0C713)
(46743	EV	20JN1937	C.0C856)	(46764	EV	17JL1937	C.06446)	(46757	EV	25JL1937	C.C4814)
(46747	EV	1AU1937	0.03713)	(46763	EV	23AU1937	0.08117)	(46765	EV	30AU1937	0.01115)
(46748	EV	13OC1537	0.04270)	(46767	EV	27CC1937	C.00774)	(46768	EV	16MR153E	C.C5080)
(46762	EV	18MR1938	0.08822)	(1243	E 6	13JN1964	C.C0209)	(1246	F 3	11JN1964	0.00598)
(1258	F 1	6JL1964	0.00708)	(1260	F 3	6JL1964	C.CC191)	(1270	F 1	10AU1564	C.C1C89)
(1279	E 1	16SE1964	0.CC393)	(1285	F 1	15SE1964	0.40766)	(1304	F 1	11DC1964	C.0C247)
(1306	F 3	11CC1964	0.00832)	(1320	E 4	7ND1964	C.CC207)	(1388	GS12	12MY1967	C.01207)
(1389	GS13	12MY1967	0.00258)	(1398	GS22	14MY1967	0.00304)	(1557	GS 4	30C1967	C.0C374)
(1558	GS 5	4DC1967	0.0C396)	(1564	GS12	5DC1967	C.00165)	(1574	GS22	6DC1967	C.02013)
(1526	PD 1	20SE1967	0.00569)	(1527	TR 1	20SE1967	C.00629)	(1529	KW 1	20SE1967	C.01199)
(1404	MQ 2	10MY1967	0.01270)	(1407	SP 2	14MY1967	C.00597)				

Nitzschia dissipata (Kütz.) Grun.

Synedra dissipata Kützing, Bacill., p. 64, pl. 14, fig. 3. 1844.
Nitzschia dissipata (Kütz.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12(2):17. 1862.

559 NIDISSIP TCT NO OF STATIONS 178

(46921	CH	23NO1945	0.00129)	(46514	CH	19AP1946	C.00107)	(46924	CH	10MY1946	C.CC141)
(46923	CH	22NO1546	0.0C656)	(46SC5	CH	JA1947	C.00245)	(46909	CH	MR1947	C.CC911)
(46916	CH	4MY1547	C.CC034)	(46SC6	CH	MY1547	C.C0265)	(46919	CH	5JN1947	C.34446)
(46922	CH	21AU1947	C.00048)	(46758	EV	5JN1937	C.04279)	(46743	EV	20JN1937	C.CC428)
(46764	EV	17JL1937	0.24174)	(46757	EV	25JL1937	0.04333)	(46747	EV	1AU1537	C.C1238)
(46763	EV	23AU1937	0.77110)	(46752	EV	15SE1937	C.08707)	(46767	EV	27CC1937	C.0C387)
(46762	EV	18MR1938	C.0220E)	(46756	EV	27AP1938	0.00168)	(46759	EV	19MY1538	C.0C338)
(46761	EV	27MY1938	C.CC273)	(1223	B 3	18MY1964	0.00156)	(1224	B 4	18MY1564	C.C1176)
(1225	C 6	15MY1964	0.00784)	(1226	C 7	16MY1964	C.00761)	(1227	C* 2	13MY1964	C.00768)
(1228	D 2	14MY1564	0.02141)	(1229	D 5	14MY1964	C.01903)	(1230	E 2	16MY1564	C.C74CE)
(1231	E 3	16MY1964	0.14431)	(1232	E 5	16MY1964	0.12696)	(1235	C 7	16JN1964	C.0C282)
(1439	B 6	5JN1964	0.03397)	(1236	C* 1	8JN1964	0.00175)	(1238	D 3	11JN1964	C.C1800)
(1239	D 4	11JN1964	C.00116)	(1240	D 6	10JN1964	0.00767)	(1241	E 2	13JN1964	C.C1626)
(1242	E 3	13JN1964	0.05395)	(1243	E 6	13JN1964	0.00209)	(1244	F 1	11JN1964	C.00658)
(1245	F 2	11JN1964	0.0C692)	(1246	F 3	11JN1964	0.01793)	(1440	B 6	11JL1964	C.CC369)
(1441	B 6	24JL1964	0.00220)	(1251	C 7	16JL1964	C.C0290)	(1255	D 5	15JL1964	C.00257)
(1256	E 2	14JL1964	0.02381)	(1257	E 3	14JL1964	0.11724)	(1258	F 1	6JL1964	C.CC708)
(1259	F 2	6JL1964	0.0C310)	(1260	F 3	6JL1964	0.00764)	(1262	B 3	17AU1964	C.00210)
(1264	C* 1	10AU1964	0.00386)	(1268	E 2	15AU1964	C.C0821)	(1269	E 3	15AU1964	C.01096)
(1270	F 1	10AU1964	0.00272)	(1280	E 2	16SE1964	0.00681)	(1285	F 1	15SE1964	C.08153)
(1288	B 3	15OC1964	0.00218)	(1445	B 6	14OC1964	C.00326)	(1292	D 1	15OC1964	C.00373)
(1300	E 3	13CC1964	0.02506)	(1301	E 4	13OC1964	0.00442)	(1302	E 5	13OC1964	C.00810)
(1304	F 1	11CC1964	0.00741)	(1305	F 2	11OC1964	C.00518)	(1306	F 3	11OC1964	C.CC277)
(1315	D 5	9ND1964	C.00910)	(1317	E 1	6ND1964	0.00383)	(1318	E 2	7NC1964	C.00761)
(1320	E 4	7ND1964	0.00207)	(1322	E 6	7ND1964	0.00333)	(1323	F 1	6NC1964	C.00418)
(1336	C 3	27JA1967	0.00193)	(1337	C 3	2MR1967	C.02058)	(1338	C 3	28MR1967	C.16793)
(1339	C 5	28MR1967	0.05612)	(1340	C 7	28MR1967	0.06835)	(1341	A 3	19AP1967	C.12909)
(1342	A 4	19AP1967	0.21475)	(1343	A 6	19AP1967	C.C2918)	(1344	C 3	25AP1967	C.C1324)
(1345	C 5	25AP1967	C.81667)	(1346	C 7	21AP1967	0.07344)	(1347	E 2	23AP1967	C.C5853)
(1348	E 5	23AP1967	0.25093)	(1368	A 3	4MY1967	C.02513)	(1369	A 4	4MY1967	C.01118)
(1370	A 6	3MY1967	0.01151)	(1372	C 5	5MY1967	0.04965)	(1373	C 7	5MY1967	C.C1141)
(1374	E 2	7MY1967	0.01494)	(1375	E 3	7MY1967	C.00481)	(1376	E 5	6MY1967	C.04779)
(1408	A 3	23MY1967	0.0C894)	(1410	A 6	24MY1967	0.00564)	(1411	C 3	31MY1967	C.0C410)
(1412	C 5	31MY1967	0.02525)	(1416	E 5	28MY1967	C.00656)	(1432	A 4	13JN1967	0.CC511)
(1433	C 3	17JN1967	0.01292)	(1434	C 5	17JN1967	0.00299)	(1438	E 5	14JN1967	C.0C363)
(1446	A 3	11JL1967	0.CC245)	(1449	C 3	16JL1967	0.13757)	(1450	C 5	16JL1967	C.02237)
(1452	E 2	14JL1967	0.00213)	(1453	E 3	15JL1967	0.07330)	(1454	E 5	15JL1967	C.0C200)
(1509	C 5	2SE1967	0.00505)	(1512	E 3	1SE1967	C.00393)	(1532	A 3	18SE1967	C.CC329)
(1533	A 4	19SE1967	0.00464)	(1539	C 3	4DC1967	C.01510)	(1540	C 5	4DC1967	C.CC496)
(1541	E 2	11CC1967	C.C1C64)	(1378	GS 2	9MY1967	0.00421)	(1379	GS 3	9MY1967	C.CC619)
(1380	GS 4	9MY1967	0.01345)	(1381	GS 5	10MY1967	C.C1193)	(1382	GS 6	10MY1967	C.0C278)
(1383	GS 7	10MY1967	C.C2139)	(1384	GS 8	10MY1967	0.02588)	(1386	GS1C	12MY1967	C.C2585)
(1387	GS11	12MY1967	0.01584)	(1391	GS15	12MY1967	0.01437)	(1392	CS16	12MY1967	C.0C308)
(1393	GS17	13MY1967	0.01096)	(1394	GS18	13MY1967	0.16170)	(1395	GS19	13MY1967	C.0C822)
(1397	GS21	13MY1967	C.0C065)	(1555	GS 2	3CC1967	0.00706)	(1556	GS 3	30C1967	C.CC521)
(1557	GS 4	30C1967	0.01868)	(1558	GS 5	4DC1967	0.03567)	(1559	GS 7	4DC1967	C.0C350)
(1560	GS 8	4DC1967	0.0C472)	(1562	GS10	5DC1967	C.00247)	(1565	GS13	5DC1967	C.CC507)
(1568	GS16	5DC1967	0.00289)	(1570	GS18	5DC1967	0.00992)	(1573	GS21	6DC1967	C.0C112)
(1544	MU 1	2DC1967	0.01430)	(1524	MI 1	20SE1967	0.02189)	(1546	LU 1	2DC1967	C.28510)
(1521	SH 1	18SE1967	0.02885)	(1522	BH 1	18SE1967	0.00547)	(1525	PW 1	20SE1967	C.01393)
(1526	MD 1	20SE1967	0.01138)	(1527	TR 1	20SE1967	0.04403)	(1528	SB 1	20SE1967	C.C2888)
(1529	KW 1	20SE1967	0.02398)	(1530	FR 1	24SE1967	C.03000)	(1545	WL 1	2DC1967	1.>1362)
(1551	ES 1	5DC1967	0.02396)	(1550	MR 1	5DC1967	C.26019)	(1553	SG 1	6DC1967	C.CC734)

(1428	MU 2	29MY1967	0.01808)	(1426	MS 2	29MY1567	C.29396)	(1351	PI 2	21AP1967	C.01241)
(1427	LU 2	29MY1567	0.06053)	(1417	MO 2	22MY1967	0.03365)	(1350	BH 2	19AP1967	C.03744)
(1399	PW 2	5MY1967	0.01360)	(1400	SB 2	6PY1967	C.02978)	(1352	RW 2	21AP1967	C.00859)
(1354	GM 2	25AP1967	0.00173)	(1429	WL 2	29MY1967	0.02123)	(1403	CA 2	10MY1967	C.14385)
(1404	MQ 2	10MY1967	0.02541)	(1405	ES 2	12MY1967	0.01290)	(1349	CI 2	19AP1967	C.00718)
(1406	GB 2	13MY1967	0.00270)	(1419	BU 2	23MY1967	0.01831)	(1423	WA 2	25MY1967	C.02997)
(1424	RN 2	25PY1967	0.01332)	(							

Nitzschia dissipata var. *media* (Hantz.) Grun.

Nitzschia media Hantzsch, Hedwigia, 2:40, pl. 6, fig. 9. 1853.
Nitzschia dissipata var. *media* Grunow *in*: Van Heurck, Syn. Diat. Belgique, p. 178, pl. 63, fig. 4. 1885.

560 NIDISSVM ICT NC OF STATIONS 40

(46770	EV	9JL1937	0.01193)	(46768	EV	16MR1938	C.11760)	(1389	GS13	12MY1967	C.CC258)
(1555	GS 2	3DC1967	0.00353)	(1557	GS 4	3DC1967	0.00374)	(1560	GS 8	4DC1967	C.00472)
(1565	GS13	5DC1967	0.01014)	(1544	MU 1	2DC1967	C.00238)	(1547	PS 1	2DC1967	C.01597)
(1524	MI 1	2GSE1967	0.04378)	(1546	LU 1	20C1967	C.02001)	(1521	SM 1	18SE1967	C.02885)
(1522	BH 1	13SE1967	0.00182)	(1523	RA 1	19SE1967	0.04613)	(1526	PO 1	20SE1967	C.03982)
(1527	IR 1	23SE1967	0.26289)	(1529	KW 1	20SE1567	C.07195)	(1530	FR 1	24SE1567	C.01000)
(1531	GM 1	29SE1967	0.00845)	(1545	WL 1	20C1967	0.03379)	(1548	CA 1	30C1967	C.01272)
(1551	ES 1	5DC1567	0.00799)	(1552	SP 1	6DC1967	0.01321)	(1550	PR 1	5DC1967	C.08673)
(1553	SG 1	6DC1967	0.00734)	(1428	MU 2	29MY1967	0.00603)	(1426	PS 2	29MY1967	C.03150)
(1351	PI 2	21AP1967	0.00621)	(1427	LU 2	29MY1967	0.01211)	(1417	MO 2	22MY1967	C.00746)
(1418	SM 2	22MY1567	0.03110)	(1350	BH 2	19AP1967	0.06388)	(1401	MQ 2	6MY1967	C.01764)
(1402	IR 2	6MY1967	0.00541)	(1354	GM 2	25AP1967	C.01036)	(1403	CA 2	10MY1967	C.01308)
(1407	SM 2	14MY1967	0.01194)	(1349	CI 2	19AP1967	0.00359)	(1406	GB 2	13MY1967	C.CC270)
(1423	WA 2	25MY1967	0.00428)	(							

Nitzschia filiformis (Wm. Smith) Schutt

Homoeocladia filiformis Wm. Smith, Syn. British Diat., Vol. 2, p. 80, pl. 55. fig. 348. 1856.
Nitzschia filiformis (Wm. Smith) Schutt *in*: Engler and Prantl, Natürl. Pflanzenfam., Teil 1, Abt. 1b, p. 144, figs. 26la-c. 1896.

561 NIFILIFC ICT NC OF STATIONS 1

(46905	CH	MR1947	C.00455)	(

Nitzschia fonticola Grun.

Nitzschia fonticola Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 69, figs. 15-20. 1881.

562 NIFONTIC ICT NC OF STATIONS 104

(46910	CH	OC1945	0.00328)	(46521	CH	23NO1545	C.00259)	(46915	CH	20FE1946	C.01707)
(46914	CH	19AP1946	0.00107)	(46924	CH	10MY1946	0.00071)	(46923	CH	22NO1946	C.01748)
(46905	CH	JA1547	0.00245)	(46509	CH	MR1947	C.00455)	(46916	CH	4MY1947	C.CC102)
(46906	CH	MY1947	0.00199)	(46519	CH	5JN1947	C.01973)	(46907	CH	JL1947	C.00148)
(46922	CH	21AU1547	C.CC291)	(46758	EV	5JN1937	C.08915)	(46743	EV	20JN1937	C.C1713)
(46770	EV	9JL1937	0.01789)	(46764	EV	17JL1537	C.75745)	(46757	EV	25JL1937	C.26961)
(46747	EV	14AU1537	C.13862)	(46763	EV	23AU1937	1.56250)	(46765	EV	30AU1937	C.CC558)
(46752	EV	15SE1937	2.04615)	(46760	EV	22SE1937	0.02462)	(46750	EV	24SE1537	C.08012)
(46744	EV	6DC1937	0.03414)	(46748	EV	13DC1937	C.08540)	(46767	EV	27DC1937	C.71951)
(46749	EV	12MR1938	0.03641)	(46768	EV	16PR1538	C.13229)	(46762	EV	18MR1938	1.49978)
(46751	EV	30MR1938	0.03350)	(46756	EV	27AP1538	C.00336)	(46759	EV	19MY1538	C.CC338)
(46761	EV	27MY1938	0.00545)	(46766	EV	14GE1538	C.19011)	(1439	B 6	5JN1964	C.CC200)
(1236	C* 1	8JN1964	0.00175)	(1237	C* 2	8JN1964	C.00258)	(1240	D 6	10JN1964	C.00153)
(1241	E 2	13JN1964	0.00444)	(1242	E 3	13JN1964	C.00300)	(1243	E 6	13JN1964	C.00209)
(1245	F 2	11JN1964	0.00366)	(1251	C 7	16JL1964	C.00290)	(1256	E 2	14JL1964	C.00366)
(1264	C* 1	10AU1964	0.01545)	(1265	C* 2	10AU1964	C.00447)	(1268	E 2	15AU1964	C.CC547)
(1269	E 3	15AU1964	0.00274)	(1272	C* 1	10SE1964	C.00410)	(1285	F 1	15SE1964	C.00582)
(1288	B 3	15DC1964	C.00435)	(1255	D 4	15DC1964	C.00595)	(1298	E 1	12DC1964	C.CC539)
(1299	E 2	12DC1964	0.00943)	(1300	E 3	13DC1964	C.00716)	(1301	E 4	13DC1964	C.CC442)
(1302	E 5	13DC1964	0.00405)	(1212	D 2	8NC1564	C.00310)	(1315	D 5	9NC1964	C.00455)
(1318	E 2	7NO1964	0.00190)	(1320	E 4	7NO1964	0.00620)	(1346	C 7	21AP1967	C.CC134)
(1416	E 5	28MY1967	0.00219)	(1452	E 2	14JL1567	0.00213)	(1511	E 2	1SE1967	C.CC307)
(1539	C 3	4DC1967	0.00503)	(1541	E 2	11DC1967	C.00532)	(1542	E 3	11DC1967	C.00509)
(1543	E 5	10DC1967	0.01437)	(1383	GS 7	10PY1967	C.00267)	(1387	GS11	12MY1967	C.00752)
(1389	GS13	12MY1967	0.00258)	(1554	GS 1	3DC1967	0.01423)	(1555	GS 2	3DC1967	C.00353)
(1558	GS 5	4DC1967	0.00396)	(1559	GS 7	4DC1967	C.00350)	(1560	GS 8	4DC1967	C.00945)
(1563	GS11	5DC1967	0.00234)	(1565	GS13	5DC1967	0.01521)	(1571	GS19	4DC1967	C.00059)
(1572	GS20	6DC1967	0.00180)	(1574	GS22	6DC1967	0.00575)	(1544	MU 1	2DC1967	C.02859)
(1547	MS 1	2DC1967	0.01597)	(1546	LU 1	2DC1967	0.31511)	(1526	PO 1	2GSE1967	C.01707)
(1527	IR 1	2GSE1967	0.01887)	(1529	KW 1	20SE1967	0.03598)	(1530	FR 1	24SE1967	C.07001)
(1545	WL 1	2DC1967	1.18527)	(1549	MQ 1	4DC1967	C.02741)	(1551	ES 1	5DC1967	C.00799)
(1552	SM 1	6DC1967	0.01321)	(1550	MR 1	5DC1967	0.09912)	(1553	SG 1	6DC1967	C.01449)
(1350	BH 2	19AP1967	0.03304)	(1401	MQ 2	6PY1967	C.00588)	(1402	IR 2	6MY1967	C.00541)
(1354	GM 2	25AP1967	0.00345)	(1429	WL 2	29MY1967	0.05308)	(1403	CA 2	10MY1967	C.02615)
(1404	MQ 2	10MY1967	C.C1270)	(1407	SM 2	14PY1967	0.01194)	(			

Nitzschia fonticola var. *pelagica* Hust.

Nitzschia fonticola var. *pelagica* Hustedt *in*: A. Schmidt, Atlas Diat., pl. 349, figs. 15-16. 1922.

563 NIFONTVP TOT NO OF STATIONS 6

(1316	O 4	9NO1964	0.00378)	(1544	MU 1	20C1967	0.00238)	(1550	MR 1	50C1967	C.07434)
(1350	BH 2	19AP1967	0.01101)	(1400	SB 2	6MY1967	0.00596)	(1407	SM 2	14MY1967	C.01194)

Nitzschia fonticoloides Sov.

Nitzschia fonticoloides Sovereign, Trans. American Micr. Soc., 77(2):130, pl. 4, figs. 58-62. 1958.

564 NIFONLEC TOT NO OF STATIONS 8

(46757	EV	25JL1937	0.00481)	(1307	GS11	12MY1967	0.00396)	(1575	GS20	60C1967	C.CC258)
(1544	MU 1	20C1967	0.00477)	(1545	ML 1	20C1967	0.00676)	(1550	MR 1	50C1967	0.03717)
(1400	SB 2	6MY1967	0.00596)	(1403	CA 2	10MY1967	0.05231)	(			

Nitzschia frustulum (Kütz.) Grun.

Synedra frustulum Kützing, Bacill., p. 63, pl. 30, fig. 77. 1844.
Nitzschia frustulum (Kütz.) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):98. 1880.

565 NIFRUSTO TOT NO OF STATIONS 4

(1573	GS21	60C1967	0.00112)	(1574	GS22	60C1967	0.00288)	(1417	MO 2	22MY1967	C.CC374)
(1401	MO 2	6MY1967	C.CC588)	(							

Nitzschia frustulum var. *perminuta* Grun.

Nitzschia frustulum var. *perminuta* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 68, fig. 31. 1881.

566 NIFRUSVP TOT NO OF STATIONS 7

(1565	GS13	50C1967	C.01014)	(1567	GS15	50C1967	C.00159)	(1568	GS16	50C1967	C.CC144)
(1523	RA 1	19SE1967	0.00923)	(1553	SC 1	60C1967	0.01469)	(1417	MO 2	22MY1967	C.00748)
(1350	BH 2	19AP1967	0.03524)	(							

Nitzschia hungarica Grun.

Nitzschia hungarica Grunow, Verh. Zool.-Bot. Ges. Wien, 12:568, pl. 18, figs. 31a-b. 1862.

568 NIHUNGAR TOT NO OF STATIONS 9

(1264	C° 1	10AU1964	0.00193)	(1304	A 3	28AU1967	C.00247)	(1556	GS 3	3CC1967	C.00521)
(1567	GS15	50C1967	0.00159)	(1417	MO 2	22MY1967	0.00374)	(1350	BH 2	19AP1967	C.CC220)
(1401	MO 2	6MY1967	0.01764)	(1400	SB 2	6MY1967	C.00596)	(1422	CA 2	23MY1967	C.00511)

Nitzschia insecta Hust.

Nitzschia insecta Hustedt, Internat. Rev. Hydrobiol., 42:141, fig. 348. 1942.

569 NIINSECO TOT NO OF STATIONS 2

(46924	CH	10PY1946	0.00071)	(1572	GS2C	60C1967	C.00090)	(			

Nitzschia interrupta (Reich.) Hust.

Denticula interrupta Reichelt *ex* Kuntze, Rev. Gen. Plant., 3:392. 1891.
Nitzschia interrupta (Reich.) Hustedt, Arch. Hydrobiol., 18:168. 1927.

570 NIINTERR TOT NO OF STATIONS 1

44763	EV	23AU1937	0.02029)	(							

Nitzschia luzonensis Hust.

Nitzschia luzonensis Hustedt, Internat. Rev. Hydrobiol., 42:137, figs. 331-336. 1942.

571 NILUZONE TCT NC CF STATIONS 29

146910	CH		0C1945	0.00109	146521	CH		23ND1945	C.00065	146917	CH		12JA1946	C.CC028
146915	CH		20FE1946	0.00569	146914	CH		19AP1946	0.00107	146916	CH		4MY1947	C.CC068
146919	CH		5JN1947	0.00759	146758	EV		5JN1937	0.00357	146770	EV		9JL1937	C.CC596
146764	EV		17JL1937	0.07252	146757	EV		25JL1937	0.00963	146767	EV		27DC1937	C.00387
146766	EV		14DE1938	0.01584	1440	B	6	11JL1564	0.00369	1256	E	2	14JL1964	0.00183
1257	E	3	14JL1964	0.00239	1258	F	1	6JL1964	0.00236	1265	C*	2	10AU1964	C.00224
1268	E	2	15AU1964	0.CC547	1275	C	2	17SE1964	C.00645	1276	D	3	18SE1964	C.C1118
1284	E	6	17SE1964	0.00318	1285	F	1	15SE1964	0.00582	1445	B	6	14DC1964	C.00652
1289	C	7	14DC1964	0.00440	1302	E	5	13DC1964	0.00405	1309	C*	1	10ND1964	0.00161
1569	GS17		5DC1967	0.00149	1573	GS21		6DC1967	C.00112					

Nitzschia macilenta Grev.

Nitzschia macilenta Greville, Quart. J. Micr. Sci., 7:83, pl. 6, figs. 8-9. 1859.

572 NIMACILO TCT NC CF STATIONS 86

160973	CH		1876	0.02362	3541	CH		1FE1881	0.07825	146921	CH		23ND1945	C.00388
146917	CH		12JA1946	0.00028	146923	CH		22ND1946	0.00437	146920	CH		20DE1946	C.00277
146905	CH		JA1947	0.00123	146926	CH		MY1947	C.00066	146927	CH		JL1947	C.CC148
146922	CH		21AU1947	0.00097	146747	EV		1AU1937	C.00990	146765	EV		30AU1937	C.CC558
146748	EV		13DC1537	0.02135	146749	EV		12MR1938	0.04855	146751	EV		30MR1538	C.01117
1244	F	1	11JN1964	0.00110	1245	F	2	11JN1964	C.00346	1246	F	3	11JN1964	C.01195
1279	E	1	16SE1964	0.00393	1285	F	1	15SE1964	C.01747	1286	F	2	15SE1964	C.C1095
1302	E	5	13DC1964	0.00810	1304	F	1	11CC1964	0.01729	1305	F	2	11DC1964	C.00863
1306	F	3	11CC1964	0.00832	1323	F	1	6ND1964	C.CC697	1324	F	2	6NC1964	C.CC466
1325	F	3	6ND1964	0.00504	1337	C	3	2MR1967	0.00441	1338	C	3	28MR1967	C.CC182
1340	C	7	28MR1967	0.00073	1344	C	3	25AP1967	C.00165	1345	C	5	25AP1967	C.CC398
1346	C	7	21AP1967	0.00134	1347	E	2	23AP1967	0.00325	1348	E	5	23AP1967	C.00274
1374	E	2	7MY1967	0.00299	1410	A	6	24MY1567	0.00564	1415	E	3	28MY1967	C.00225
1437	E	3	15JN1967	0.00269	1438	E	5	14JN1567	C.00363	1504	A	3	28AU1967	C.00247
1377	GS	1	9MY1967	0.00396	1382	GS	6	10MY1967	0.01110	1383	GS	7	10MY1967	C.00267
1384	GS	8	10MY1567	0.00185	1385	GS	9	10MY1967	0.00471	1387	GS11		12MY1567	C.C1980
1388	GS12		12MY1567	0.08446	1389	GS13		12MY1967	0.12634	1390	GS14		12MY1967	C.01174
1391	GS15		12MY1567	0.02873	1392	GS16		12MY1967	C.04007	1393	GS17		13MY1567	C.C2192
1394	GS18		13MY1567	0.0223e	1395	GS19		13MY1967	0.00352	1396	GS20		13MY1967	C.00222
1397	GS21		13MY1567	0.00131	1398	GS22		14MY1567	C.01214	1558	GS	5	4CC1567	C.CC793
1559	GS	7	4CC1967	0.00350	1561	GS	9	4CC1967	0.00587	1563	GS11		5DC1967	C.CC935
1564	GS12		5DC1967	0.00165	1565	GS13		5DC1967	C.00507	1566	CS14		5GC1967	C.CC917
1567	GS15		5DC1967	0.02699	1568	GS16		5DC1967	C.01299	1569	GS17		5DC1967	C.03122
1570	GS18		5DC1967	0.10908	1571	GS19		6CC1967	C.00059	1573	GS21		6CC1967	C.CC112
1574	GS22		6DC1967	0.00288	1575	GS20		6DC1967	0.00258	1526	MO	1	20SE1967	C.C1707
1527	TR	1	20SE1967	C.CC629	1528	SB	1	20SE1967	C.01444	1529	MW	1	20SE1967	C.C4797
1551	ES	1	5DC1967	0.00799	1552	SM	1	6CC1967	C.01321	1550	PR	1	5DC1967	C.C1239
1553	SG	1	6DC1967	0.01469	1426	MS	2	29MY1567	C.01050	1404	PC	2	10MY1967	0.02541
1407	SM	2	14MY1967	0.00597	1406	GB	2	13MY1967	0.00270					

Nitzschia palea (Kütz.) Wm. Smith

Synedra palea Kützing, Bacill., p. 63, pl. 3, fig. 27, pl. 4, fig. 2. 1844.
Nitzschia palea (Kütz.) Wm. Smith, Syn. British Diat., Vol. 2, p. 89. 1856.

573 NIPALEA TCT NC CF STATICAS 70

146910	CH		CC1945	0.00218	146521	CH		23ND1945	C.00065	146917	CH		12JA1946	C.CC028
146915	CH		20FE1946	0.00569	146914	CH		19AP1946	0.00107	146924	CH		10MY1946	C.00071
146923	CH		22ND1946	0.00437	146SC6	CH		MR1947	C.00455	146916	CH		4MY1947	C.CC034
146919	CH		5JN1947	0.00152	146SC7	CH		JL1947	0.00197	146922	CH		21AU1947	C.03926
146758	EV		5JA1937	0.00357	146743	EV		20JN1937	0.00428	146770	EV		9JL1937	C.CC596
146764	EV		17JL1937	0.9C250	146757	EV		25JL1937	0.04333	146747	EV		1AU1937	C.00436
146763	EV		23AU1537	0.08117	146752	EV		15SE1937	C.08707	146750	EV		24SE1937	C.04242
146744	EV		6DC1937	0.02439	146767	EV		27CC1937	C.05416	146768	EV		18MR1538	C.C147C
146762	EV		18MR1938	0.08822	146761	EV		27MY1538	0.00273	1252	C*	1	14JL1564	C.00558
1254	D	2	15JL1964	0.00383	1256	E	2	14JL1964	0.00183	1258	F	1	6JL1564	C.CC472
1260	F	3	6JL1964	0.00382	1272	C*	1	10SE1964	C.00821	1279	E	1	16SE1564	C.CC785
1285	F	1	15SE1964	0.00582	1302	E	5	13DC1964	C.00405	1452	E	2	14JL1567	C.CC426
1454	E	5	15JL1967	0.0C200	1532	A	3	18SE1967	0.00657	1538	E	5	23SE1967	C.CC952
1541	E	2	11DC1967	0.00532	1542	E	3	11DC1967	C.01017	1555	GS	2	3DC1967	C.CC393
1559	GS	7	4DC1967	0.00350	1565	GS13		5DC1967	C.00507	1544	MU	1	2DC1967	C.03098
1546	LU	1	2DC1567	C.08003	1520	MC	1	18SE1567	C.00471	1521	SM	1	18SE1567	C.23964
1522	BM	1	18SE1967	0.00547	1523	AA	1	19SE1967	0.00923	1526	MO	1	20SE1967	C.02845
1527	TR	1	2GSE1967	0.1C063	1528	SB	1	20SE1967	0.04332	1529	MW	1	2CSE1967	C.01199
1530	FR	1	24SE1967	0.06001	1545	WL	1	20C1967	C.25677	1549	MO	1	4DC1967	C.C1370
1551	ES	1	5DC1967	0.01598	1552	SM	1	6DC1967	0.00660	1550	PR	1	5DC1967	C.35931
1553	SG	1	6DC1967	0.00734	1426	MS	2	29MY1967	0.03150	1417	MO	2	22MY1567	C.0C374
1350	BM	2	19AP1967	0.2061E	1401	MO	2	6MY1967	0.01764	1402	TR	2	6MY1967	C.01624
1400	SB	2	6MY1967	0.01191	1352	MW	2	21AP1967	C.C1718	1354	GM	2	25AP1967	C.CC698
1423	WA	2	25MY1967	0.00428										

Nitzschia palea var. *sumatrana* Hust.

Nitzschia palea var. *sumatrana* Hustedt, Arch. Hydrobiol. Suppl. Bd., 15:483, pl. 41, fig. 10. 1938.

575 NIPALEVS ICT NC OF STATIONS 1

(1323	F 1	6ND1964	0.0C139)	(													

Nitzschia paleacea Grun.

Nitzschia paleacea Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 68, figs. 9-10. 1881.

574 NIPALEAC ICT NC OF STATIONS 1

(1544	PU 1	2CC1967	0.02856)	(													

Nitzschia parvula Wm. Smith

Nitzschia parvula Wm. Smith, Syn. British Diat., Vol. 1, p. 41, pl. 13, fig. 106. 1853.

576 NIPARVUL ICT NC OF STATIONS 1

(1426	PS 2	25MY1967	0.C21CC)	(													

Nitzschia recta Hantz.

Nitzschia recta Hantzsch *ex* Rabenhorst, Alg. Sachsens resp. Mitteleuropas Exsicc., No. 1283. 1860.

577 NIRECTA ICT NC OF STATIONS 198

(0C973	CH	1876	0.04724)	(3540	CH		11MY1879	0.01398)	(3541	CH		1FE1881	C.C4891)				
(3507	CH	19FE1881	0.02264)	(46921	CH		23AG1945	C.00453)	(46917	CH		12JA1946	G.0C139)				
(46915	CH	20FE1946	0.02845)	(46914	CH		19AP1946	C.C0320)	(46924	CH		10MY1946	G.00282)				
(46923	CH	22AG1946	0.0C219)	(46920	CH		20DE1946	0.00123)	(46905	CH		JA1947	G.00245)				
(46905	CH	MR1947	0.00455)	(46916	CH		4MY1947	C.00543)	(46919	CH		5JN1947	C.CC455)				
(46907	CH	JL1947	0.01381)	(46922	CH		21AU1947	0.01502)	(46758	EV		5JN1937	C.0C357)				
(46771	EV	11JN1937	0.00238)	(46763	EV		20JN1937	0.00856)	(46770	EV		9JL1937	C.CC596)				
(46764	EV	17JL1937	0.01612)	(46757	EV		25JL1937	0.02407)	(46747	EV		1AU1937	C.01485)				
(46750	EV	24SE1937	0.00471)	(46767	EV		27DC1937	0.0C387)	(46768	EV		16MR1938	C.C1470)				
(46751	EV	30MR1938	0.C1117)	(1223	B 3		18MY1964	C.C5C00)	(1224	B 4		18MY1964	C.C5411)				
(1225	C 6	15MY1964	0.C5880)	(1226	C 7		16MY1964	0.13699)	(1227	C* 2		13MY1964	C.03509)				
(1228	D 2	14MY1964	0.27248)	(1229	D 5		14MY1964	0.35525)	(1230	E 2		16MY1964	C.21925)				
(1231	E 3	16MY1964	0.62616)	(1232	E 5		16MY1964	C.40697)	(1233	B 3		5JN2964	C.04763)				
(1235	C 7	1EJN1964	0.00282)	(1439	B 6		5JN1964	C.02997)	(1236	C* 1		8JN1964	C.C1050)				
(1237	C* 2	8JN1964	C.C3CC9)	(1238	D 3		11JN1964	C.03000)	(1239	D 4		11JN1964	C.C1509)				
(1240	D 6	10JN1964	C.10738)	(1241	E 2		13JN1964	C.C7393)	(1242	E 3		13JN1964	C.C6444)				
(1243	E 6	13JN1964	0.14016)	(1244	F 1		11JN1964	C.14144)	(1245	F 2		11JN1964	C.C5335)				
(1246	F 3	11JN1964	0.C5379)	(1249	C 3		8JL1964	0.00272)	(1252	C* 1		16JL1964	C.CC279)				
(1255	D 5	15JL1964	0.00257)	(1256	E 2		14JL1964	0.01282)	(1257	E 3		14JL1964	C.C1196)				
(1258	F 1	8JL1964	0.01180)	(1259	F 2		6JL1964	C.00930)	(1260	F 3		6JL1964	C.C1146)				
(1208	E 2	15AU1964	0.0C547)	(127C	F 1		1CAU1964	0.00272)	(1271	C 7		22SE1964	C.CC653)				
(1274	D 1	17SE1964	0.00469)	(1279	E 1		18SE1964	0.00393)	(1284	E 6		17SE1964	G.00318)				
(1285	F 1	15SE1964	0.03494)	(1288	B 3		15DC1964	C.00218)	(1289	C 7		14DC1964	G.01219)				
(1290	C* 1	16CC1964	0.00379)	(1292	D 1		15CC1964	C.01118)	(1294	D 3		15DC1964	G.0C330)				
(1295	D 4	15CC1964	0.00595)	(1297	D 6		14DC1964	C.C0762)	(1298	E 1		12DC1964	C.0C808)				
(1299	E 2	12DC1964	0.01571)	(13C0	E 3		13DC1964	C.01074)	(1302	E 5		13DC1964	C.CC810)				
(1303	E 6	13DC1964	0.00560)	(13C4	F 1		11DC1964	C.01976)	(1305	F 2		11DC1964	C.C2415)				
(1306	F 3	11DC1964	C.04158)	(1307	B 6		NO1964	G.00361)	(1310	C* 2		10NC1964	C.CC227)				
(1316	D 4	9NO1964	0.0C378)	(1317	E 1		6NO1964	C.00191)	(1318	E 2		7NO1964	G.CC190)				
(1319	E 3	7NO1964	0.00785)	(1320	E 4		7NO1964	0.00827)	(1321	E 5		7NO1964	C.C0958)				
(1322	E 6	7NO1964	0.01333)	(1323	F 1		6NO1964	0.00139)	(1324	F 2		6NO1964	C.0C233)				
(1325	F 3	6NO1964	0.00252)	(1336	C 3		27JA1967	C.00963)	(1337	C 3		2MR1967	C.04997)				
(1338	C 3	28MR1967	C.10512)	(1339	C 5		28MR1967	C.30866)	(1340	C 7		28MR1967	C.07417)				
(1341	A 3	19AP1967	0.04448)	(1342	A 4		19AP1967	0.16422)	(1343	A 6		19AP1967	C.02709)				
(1344	C 3	25AP1967	0.01489)	(1345	C 5		25AP1967	1.09155)	(1346	C 7		21AP1967	C.06409)				
(1347	E 2	23AP1967	0.13495)	(1348	E 5		23AP1967	0.17272)	(1368	A 3		4MY1967	C.14138)				
(1369	A 4	4MY1967	0.C1864)	(1370	A 6		3MY1967	0.10358)	(1372	C 5		5MY1967	C.16314)				
(1373	C 7	5MY1967	0.00856)	(1374	E 2		7MY1967	0.01793)	(1375	E 3		7MY1967	C.02166)				
(1376	E 5	6MY1967	C.08995)	(1410	A 6		24MY1967	0.03383)	(1411	C 3		31MY1967	C.C1641)				
(1412	C 5	31MY1967	0.02525)	(1413	C 7		25MY1967	0.00316)	(1415	E 3		28MY1967	C.00450)				
(1432	A 4	13JN1967	0.01533)	(1433	C 3		17JN1967	0.00446)	(1434	C 5		17JN1967	C.00299)				
(1435	C 7	13JN1967	0.0C631)	(1436	E 2		15JN1967	C.00362)	(1438	E 5		14JN1967	C.0C363)				
(1449	C 3	16JL1967	0.00764)	(1532	A 3		18SE1967	C.00329)	(1538	E 5		23SE1967	C.0C552)				
(1377	GS 1	9MY1967	0.00396)	(1378	GS 2		9MY1967	C.00841)	(1380	GS 4		9MY1967	C.01177)				
(1381	GS 5	10MY1967	0.00954)	(1382	GS 6		10MY1967	0.01110)	(1383	GS 7		10MY1967	C.01604)				
(1384	GS 8	10MY1967	0.01664)	(1385	GS 9		10MY1967	C.00942)	(1386	GS10		12MY1967	C.0C575)				
(1387	GS11	12MY1967	0.11090)	(1388	GS12		12MY1967	0.04027)	(1389	GS13		12MY1967	C.04383)				
(1390	GS14	12MY1967	0.22901)	(1391	GS15		12MY1967	0.20591)	(1392	GS16		12MY1967	C.C3390)				
(1393	GS17	13MY1967	0.06027)	(1394	GS18		13MY1967	0.66226)	(1395	GS19		13MY1967	C.06576)				
(1396	GS20	13MY1967	0.00296)	(1397	GS21		13MY1967	0.01112)	(1398	GS22		14MY1967	C.0C304)				
(1557	GS 4	30C1967	0.00374)	(156C	GS 8		4DC1967	C.00472)	(1563	GS11		5DC1967	C.00468)				
(1567	GS15	5DC1967	0.00159)	(1568	GS16		5DC1967	C.00144)	(1569	GS17		5DC1967	C.04757)				
(1570	GS18	5DC1967	0.02975)	(1571	GS19		6DC1967	C.00117)	(1573	GS21		4DC1967	C.0C224)				

(1575	GS28	6DEC1967	0.00129)	(1544	MU 1	20DC1967	C.00477)	(1546	LU 1	20DC1967	C.01501)
(1520	MO 1	18SE1967	0.02829)	(1521	SM 1	18SE1967	0.05193)	(1522	BM 1	18SE1967	C.01641)
(1526	MO 1	20SE1967	0.01707)	(1527	TR 1	20SE1967	0.02516)	(1528	SB 1	20SE1967	C.01444)
(1545	WL 1	2CC1967	0.04054)	(1552	SM 1	6DC1967	C.00660)	(1550	PR 1	5DC1967	C.16107)
(1553	SG 1	6DC1967	0.01469)	(1428	MU 2	29MY1967	0.00301)	(1426	PS 2	29MY1967	C.05249)
(1351	MI 2	21AP1967	0.01241)	(1427	LU 2	29MY1967	0.08475)	(1417	MO 2	22MY1967	C.02991)
(1418	SM 2	22MY1967	0.04666)	(1350	BM 2	19AP1967	0.02643)	(1425	PA 2	25MY1967	C.02652)
(1399	PW 2	5PY1967	0.02040)	(1401	MO 2	6MY1967	0.04116)	(1402	TR 2	6MY1967	C.08122)
(1400	SB 2	6PY1967	0.01787)	(1352	KW 2	21AP1967	C.02577)	(1354	GH 2	25AP1967	C.01381)
(1429	WL 2	29PY1967	0.02123)	(1403	CA 2	10MY1967	0.06539)	(1404	MQ 2	10PY1967	C.02541)
(1405	ES 2	12MY1967	0.07095)	(1407	SM 2	14MY1967	0.04180)	(1349	CI 2	19AP1967	C.02155)
(1419	BU 2	23MY1967	0.05492)	(1420	IM 2	23MY1967	0.01511)	(1421	CH 2	23MY1967	C.01735)
(1422	GA 2	23MY1967	0.05109)	(1423	WA 2	25PY1967	0.09421)	(1424	KN 2	25MY1967	C.01332)

Nitzschia romana Grun.

Nitzschia romana Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 69, figs. 12-13. 1881.

578 NIRCMANA TOT NO OF STATIONS 48

(46917	CH	12JA1946	0.00083)	(46515	CH	20FE1946	0.00569)	(46924	CH	10MY1946	C.00141)
(46923	CH	22NC1946	0.00437)	(46516	CH	4MY1947	0.00034)	(46919	CH	5JN1947	C.00303)
(46747	EV	1AU1937	0.0C248)	(46767	EV	27DC1937	C.00387)	(1230	E 2	16MY1964	C.0C296)
(1240	D 6	10JN1964	0.00307)	(1243	E 6	13JN1964	0.00418)	(1244	F 1	11JN1964	C.0C219)
(1440	B 6	11JL1964	C.CC365)	(1258	F 1	6JL1964	C.00236)	(1260	F 3	6JL1964	C.CC191)
(1264	C* 1	10AU1964	0.02510)	(1265	C* 2	10AU1964	0.00224)	(1266	D 3	18AU1964	C.00351)
(1275	D 2	17SE1964	C.0C645)	(1279	E 1	16SE1964	C.00785)	(1285	F 1	15SE1964	C.C1165)
(1304	F 1	11DC1964	0.00247)	(1307	B 6	NO1964	C.00361)	(1308	C 7	6NO1964	C.00304)
(1320	E 4	7NC1964	0.00207)	(1343	A 6	19AP1967	C.00069)	(1536	E 2	24SE1967	C.0C273)
(1543	E 5	10DC1967	0.00718)	(1387	GS11	12MY1967	0.00396)	(1398	GS22	14MY1967	C.0C304)
(1555	GS 2	3CC1967	0.00353)	(1559	GS 7	4DC1967	C.00350)	(1564	GS12	5DC1967	C.0C165)
(1522	BM 1	18SE1967	0.00182)	(1526	MO 1	20SE1967	C.01707)	(1527	TR 1	20SE1967	C.00629)
(1529	KW 1	20SE1967	0.01199)	(1531	GH 1	25SE1967	C.00845)	(1550	PR 1	5DC1967	C.02478)
(1428	MU 2	29MY1967	0.003G1)	(1351	MI 2	21AP1967	C.00310)	(1417	MO 2	22MY1967	C.00748)
(1350	BM 2	19AP1967	C.01762)	(1401	MO 2	6MY1967	C.01764)	(1402	TR 2	6MY1967	C.0C541)
(1400	SB 2	6MY1967	C.0C596)	(1352	KW 2	21AP1967	0.00859)	(1407	SM 2	14MY1967	C.01194)

Nitzschia sigmoidea (Nitz.) Wm. Smith

Bacillaria sigmoidea Nitzsch, Neue Schrift. Naturforsch. Ges. Halle, 3(1):104. 1817.

575 NISIGMCI TOT NO OF STATIONS 25

(1337	C 3	2MR1967	C.0C147)	(1341	A 3	19AP1967	C.00108)	(1396	GS20	13MY1967	C.0C222)
(1554	GS 1	30C1967	0.00356)	(1565	GS13	5DC1967	C.01014)	(1568	GS16	5DC1967	C.00144)
(1569	GS17	5DC1967	C.0C149)	(1575	GS28	6DC1967	C.00516)	(1547	PS 1	2DC1967	C.00798)
(1526	MO 1	20SE1967	0.01707)	(1527	TR 1	20SE1967	0.01258)	(1529	KW 1	20SE1967	C.01199)
(1530	FR 1	24SE1967	0.0100C)	(1531	GH 1	25SE1967	0.00845)	(1552	SM 1	6DC1967	C.0C660)
(1550	PR 1	5CC1967	0.02478)	(1553	SG 1	6DC1967	0.00734)	(1428	MU 2	29MY1967	C.00301)
(1417	MO 2	22MY1967	0.0C748)	(1418	SM 2	22PY1967	C.01555)	(1350	BM 2	19AP1967	C.02863)
(1401	MO 2	6MY1967	0.00588)	(1404	MQ 2	10MY1967	C.02541)	(1407	SM 2	14MY1967	C.01194)
(1349	CI 2	19AP1967	C.0C359)	(							

Nitzschia sinuata var. *tabellaria* (Grun.) Grun.

Denticula tabellaria Grunow, Verh. Zool.-Bot. Ges. Wien, 12:548. 1862.
Nitzschia sinuata var. *tabellaria* (Grun.) Grunow *in*: Van Heurck, Syn. Diat. Belgique, p. 176, pl. 60, figs. 12-13. 1885.

580 NISINUVT TOT NO OF STATIONS 3

(1530	FR 1	24SE1967	0.0100C)	(1545	WL 1	20DC1967	C.00676)	(1550	PR 1	5DC1967	C.01239)

Nitzschia spiculoides Hust.

Nitzschia spiculoides Hustedt, Instit. Parcs. Nat. Congo Belge, Expl. Parc Nat. Albert, Mission Damas (1935-1936), Fasc. 8, p. 151, pl. 13, figs. 5-6. 1949.

582 NISPICUL TOT NO OF STATIONS 8

(1258	F 1	6JL1964	C.CC964)	(1259	F 2	6JL1964	C.CC930)	(1260	F 3	6JL1964	C.CC191)
(1300	E 3	13DC1964	0.00358)	(1536	E 2	24SE1967	0.00273)	(1380	GS 4	9MY1967	C.0C673)
(1544	MU 1	2DC1967	0.00477)	(1522	BM 1	18SE1967	C.00365)	(			

Nitzschia subacicularis Hust.

Nitzschia subacicularis Hustedt *in*: A. Schmidt, Atlas Diat., pl. 348, fig. 76. 1922.

583 NISACICU TCT NO OF STATIONS 1

(1268 E 2 15AU1964 0.00274) (

Nitzschia sublinearis Hust.

Nitzschia sublinearis Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 411, fig. 786. 1930.

581 NISLINEA TCT NO OF STATIONS 9

(1522	BM 1	18SE1967	0.03100)	(1523	RA 1	15SE1967	0.00923)	(1526	PD 1	20SE1967	0.03414)
(1528	SB 1	20SE1967	0.08663)	(1545	WL 1	20C1967	0.33110)	(1550	PR 1	50C1967	0.03717)
(1417	MO 2	22MY1967	0.01122)	(1350	BM 2	19AP1967	0.01762)	(1420	JM 2	23MY1967	0.01511)

Nitzschia thermalis (Ehr.) Auersw.

Pinnularia thermalis Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:21. 1843.
Nitzschia thermalis (Ehr.) Auerswald *ex* Rabenhorst, Alg. Sachsens resp. Mitteleuropas Exsicc., No. 1064. 1860.

584 NITHERMA TCT NO OF STATIONS 2

(1264 C' 1 1CAU1964 0.00193) (1532 A 3 18SE1967 0.00329) (

Nitzschia tropica Hust.

Nitzschia tropica Hustedt, Institut. Parcs Nat. Congo Belge, Expl. Parc Nat. Albert, Mission Damas (1935-1936), Fasc. 8, p. 147, pl. 11, figs. 34-48. 1949.

585 NITROPIC TCT NO OF STATIONS 2

(46762 EV 18MR1938 0.02206) (1258 F 1 6JL1964 0.00236) (

Nitzschia tryblionella Hantz.

Nitzschia tryblionella Hantzsch *ex* Rabenhorst, Alg. Sachsens resp. Mitteleuropas Exsicc., No. 984. 1860.

586 NITRYBLI TCT NO OF STATIONS 1

(1552 SM 1 6OC1967 0.00660) (

Nitzschia tryblionella var. *debilis* (Arnott) A. Mayer

Nitzschia debilis Arnott *ex* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):68. 1880.
Nitzschia tryblionella var. *debilis* (Arnott) A. Mayer, Ber. Naturw. Ver. Regensburg, 14:295, pl. 16, fig. 16. 1913.

587 NITRYBVD TCT NO OF STATIONS 1

(46764 EV 17JL1537 0.00006) (

Nitzschia tryblionella var. *levidensis* (Wm. Smith) Grun.

Tryblionella levidensis Wm. Smith, Syn. British Diat., Vol. 2, p. 89. 1856.
Nitzschia tryblionella var. *levidensis* (Wm. Smith) Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):70. 1880.

588 NITRYBVL TCT NO OF STATIONS 4

(1556	CS 3	3CC1967	0.00521)	(1572	GS2C	6OC1967	0.00090)	(1545	WL 1	2CC1967	0.00676)
(1401	MO 2	6MY1967	0.01764)	(							

Species *incertae sedis*

Nitzschia sp. #1. (aff. *N. lancettula* O. Müll.)

585 NISPECCA TOT NO OF STATIONS 120

(46910	CH	DE1945	0.00548)	(46521	CH	23NO1945	0.00194)	(46917	CH	12JA1946	0.00028)
(46915	CH	20FE1946	0.01707)	(46514	CH	19AP1946	0.00641)	(46924	CH	10MY1946	0.00141)
(46923	CH	22NO1946	0.00874)	(46520	CH	20DE1946	0.00031)	(46905	CH	JA1947	0.00735)
(46909	CH	MR1947	0.00911)	(46916	CH	4MY1947	0.00170)	(46906	CH	MY1947	0.00929)
(46919	CH	5JN1947	0.09863)	(46507	CH	JL1947	0.00099)	(46922	CH	21AU1947	0.00291)
(46758	EV	5JN1937	0.04636)	(46771	EV	11JN1937	0.00238)	(46764	EV	17JL1937	0.04835)
(46757	EV	25JL1937	0.01928)	(46747	EV	1AU1937	0.00495)	(46763	EV	23AU1937	0.02029)
(46752	EV	15SE1937	0.06530)	(46760	EV	22SE1937	0.00492)	(46744	EV	4OC1937	0.00975)
(46767	EV	27OC1937	0.00387)	(46768	EV	16MR1938	0.01470)	(46762	EV	18MR1938	0.04411)
(1225	C 6	15MY1964	0.00392)	(1228	D 2	14MY1964	0.00389)	(1229	D 5	14MY1964	0.00422)
(1230	E 2	16MY1964	0.00593)	(1231	E 3	16MY1964	0.03180)	(1232	E 5	16MY1964	0.05218)
(1233	B 3	5JN2964	0.00238)	(1238	D 3	11JN1964	0.00400)	(1239	D 4	11JN1964	0.00116)
(1240	D 6	10JN1964	0.00153)	(1241	E 2	13JN1964	0.00739)	(1242	E 3	13JN1964	0.00749)
(1243	E 6	13JN1964	0.00418)	(1244	F 1	11JN1964	0.00548)	(1245	F 2	11JN1964	0.00692)
(1246	F 3	11JN1964	0.01195)	(1252	C' 1	16JL1964	0.00837)	(1254	D 2	15JL1964	0.00383)
(1256	E 2	14JL1964	0.01282)	(1257	E 3	14JL1964	0.00479)	(1258	F 1	6JL1964	0.01888)
(1259	F 2	6JL1964	0.00310)	(1260	F 3	6JL1964	0.00573)	(1264	C' 1	10AU1964	0.00579)
(1265	C' 2	10AU1964	0.00224)	(1266	D 3	18AU1964	0.00351)	(1267	D 6	18AU1964	0.00218)
(1268	E 2	15AU1964	0.02188)	(1269	E 3	15AU1964	0.01096)	(1274	D 1	17SE1964	0.00469)
(1285	F 1	15SE1964	0.02912)	(1288	B 3	15OC1964	0.00218)	(1445	B 6	14OC1964	0.00652)
(1290	C' 1	16OC1964	0.00379)	(1300	E 3	13OC1964	0.01790)	(1304	F 1	11OC1964	0.00247)
(1322	E 6	7NO1964	0.00333)	(1337	C 3	2MR1967	0.00588)	(1338	C 3	28MR1967	0.00661)
(1339	C 5	28MR1967	0.04053)	(1340	C 7	28MR1967	0.00291)	(1341	A 3	19AP1967	0.00217)
(1342	A 4	19AP1967	0.00100)	(1343	A 6	19AP1967	0.00139)	(1345	C 5	25AP1967	0.02924)
(1347	E 2	23AP1967	0.00813)	(1348	E 5	23AP1967	0.02467)	(1368	A 3	4MY1967	0.00314)
(1370	A 6	3MY1967	0.00230)	(1372	C 5	5MY1967	0.00355)	(1373	C 7	5MY1967	0.00570)
(1374	E 2	7MY1967	0.00598)	(1375	E 3	7MY1967	0.01684)	(1376	E 5	6MY1967	0.00562)
(1411	C 3	31MY1967	0.00410)	(1412	C 5	31MY1967	0.00842)	(1416	E 5	28MY1967	0.00437)
(1433	C 3	17JN1967	0.00646)	(1436	E 2	15JN1967	0.00362)	(1449	C 3	14JL1967	0.01525)
(1451	C 7	16JL1967	0.00197)	(1453	E 3	15JL1967	0.00506)	(1512	E 3	15SE1967	0.00393)
(1536	E 2	24SE1967	0.00273)	(1542	E 3	11OC1967	0.00509)	(1381	GS 5	10MY1967	0.00477)
(1383	GS 7	10MY1967	0.00802)	(1384	GS 8	10MY1967	0.00555)	(1385	GS 9	10MY1967	0.00235)
(1386	GS10	12MY1967	0.00287)	(1387	GS11	12MY1967	0.00396)	(1394	GS18	13MY1967	0.00172)
(1570	GS18	5OC1967	0.00992)	(1574	GS22	6OC1967	0.00288)	(1546	LU 1	2OC1967	0.00580)
(1526	MO 1	20SE1967	0.02845)	(1527	TR 1	20SE1967	0.01258)	(1550	MR 1	5OC1967	0.01239)
(1426	MS 2	25MY1967	0.01050)	(1351	MI 2	21AP1967	0.00621)	(1417	HC 2	22MY1967	0.01865)
(1425	RA 2	25MY1967	0.00884)	(1359	PW 2	5MY1967	0.00680)	(1401	PO 2	6MY1967	0.00988)
(1400	SB 2	8MY1967	0.01191)	(1352	MW 2	21AP1967	0.00859)	(1353	FR 2	23AP1967	0.01055)
(1403	CA 2	10MY1967	0.01308)	(1407	SR 2	14MY1967	0.00597)	(1421	CH 2	23MY1967	0.01735)
(1422	GA 2	23MY1967	0.01022)	(1423	WA 2	25MY1967	0.02141)	(1424	KA 2	25MY1967	0.01332)

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(60973	CH	1876	0.07085)	(3540	CH	11MY1879	0.06523)	(3541	CH	1FE1881	0.17607)
(3507	CH	19FE1881	0.03396)	(46521	CH	23NO1945	0.11576)	(46908	CH	DE1945	0.05035)
(46917	CH	12JA1946	0.30635)	(46515	CH	20FE1946	0.09105)	(46914	CH	19AP1946	0.52107)
(46924	CH	10MY1946	0.09171)	(46523	CH	22NO1946	0.15736)	(46920	CH	20DE1946	0.02003)
(46905	CH	JA1947	0.01716)	(46509	CH	MR1947	0.12295)	(46512	CH	AP1947	0.05749)
(46916	CH	4MY1947	0.01391)	(46506	CH	MY1947	0.41016)	(46919	CH	5JN1947	0.12291)
(46907	CH	JL1947	0.11785)	(46522	CH	21AU1947	0.07960)	(46758	EV	5JN1937	1.29805)
(46771	EV	11JN1937	0.66568)	(46743	EV	20JN1937	0.37681)	(46764	EV	17JL1937	0.12087)
(46757	EV	25JL1937	0.00481)	(46747	EV	1AU1937	0.09902)	(46763	EV	23AU1937	0.08117)
(46752	EV	15SE1937	0.02177)	(46748	EV	13OC1937	0.32024)	(46767	EV	27OC1937	0.02095)
(46745	EV	12MR1938	0.06069)	(46768	EV	16MR1938	0.07350)	(46762	EV	18MR1938	0.04411)
(46751	EV	30MR1938	0.04466)	(46772	EV	18AP1938	0.01419)	(46756	EV	27AP1938	0.11753)
(46759	EV	19MY1938	0.05402)	(46761	EV	27MY1938	0.05178)	(46766	EV	14SE1938	0.03169)
(1223	B 3	18MY1964	0.00781)	(1224	B 4	18MY1964	0.02745)	(1225	C 6	15MY1964	0.05880)
(1226	C 7	16MY1964	0.17504)	(1227	C' 2	13MY1964	0.01535)	(1228	D 2	14MY1964	0.32698)
(1229	D 5	14MY1964	0.21569)	(1230	E 2	16MY1964	0.15706)	(1231	E 3	16MY1964	0.54169)
(1232	E 5	16MY1964	0.20436)	(1233	B 3	5JN2964	0.03334)	(1234	B 3	18JN1964	0.00281)
(1235	C 7	16JN1964	0.00282)	(1439	B 6	5JN1964	0.05594)	(1236	C' 1	8JN1964	0.05601)
(1237	C' 2	8JN1964	0.04640)	(1238	D 3	11JN1964	0.16600)	(1239	D 4	11JN1964	0.00696)
(1240	D 6	10JN1964	0.53688)	(1241	E 2	13JN1964	0.15081)	(1242	E 3	13JN1964	0.20981)
(1243	E 6	13JN1964	0.22551)	(1244	F 1	11JN1964	0.08443)	(1245	F 2	11JN1964	0.06915)
(1246	F 3	11JN1964	0.05379)	(1247	B 3	14JL1964	0.00427)	(1248	B 3	24JL1964	0.00394)
(1440	B 6	11JL1964	0.00737)	(1441	B 6	24JL1964	0.00441)	(1250	C 6	10JL1964	0.00411)
(1251	C 7	16JL1964	0.00579)	(1252	C' 1	16JL1964	0.00279)	(1253	C' 2	16JL1964	0.01598)
(1254	D 2	15JL1964	0.03448)	(1255	D 5	15JL1964	0.00513)	(1256	E 2	14JL1964	0.02297)
(1257	E 3	14JL1964	0.11485)	(1258	F 1	6JL1964	0.08259)	(1259	F 2	6JL1964	0.05578)
(1260	F 3	6JL1964	0.02865)	(1261	B 3	2AU1964	0.00196)	(1264	C' 1	10AU1964	0.00193)
(1268	E 2	15AU1964	0.00274)	(1269	E 3	15AU1964	0.01644)	(1272	C' 1	10SE1964	0.01231)
(1278	D 6	18SE1964	0.00384)	(1279	E 1	16SE1964	0.01571)	(1281	E 3	16SE1964	0.00785)
(1284	E 6	17SE1964	0.00635)	(1285	F 1	15SE1964	0.14559)	(1287	F 3	15SE1964	0.00500)
(1288	B 3	15OC1964	0.01088)	(1445	B 6	14OC1964	0.00978)	(1289	C 7	14OC1964	0.00440)
(1291	C' 2	16OC1964	0.00245)	(1293	D 2	15OC1964	0.00472)	(1297	D 6	14OC1964	0.00762)
(1298	E 1	12OC1964	0.00808)	(1299	E 2	12OC1964	0.00943)	(1300	E 3	13OC1964	0.03222)
(1301	E 4	13OC1964	0.00442)	(1302	E 5	13OC1964	0.02834)	(1303	E 6	13OC1964	0.02239)
(1304	F 1	11OC1964	0.01976)	(1305	F 2	11OC1964	0.00690)	(1306	F 3	11OC1964	0.00832)
(1307	B 6	NO1964	0.01082)	(1308	C 7	6NO1964	0.00912)	(1310	C' 2	10NO1964	0.00227)
(1314	D 4	9NO1964	0.00287)	(1315	D 5	9NO1964	0.00455)	(1316	D 6	9NO1964	0.00378)
(1317	E 1	6NO1964	0.00387)	(1318	E 2	7NO1964	0.00190)	(1319	E 3	7NO1964	0.00524)
(1320	E 4	7NO1964	0.01241)	(1321	E 5	7NO1964	0.00319)	(1322	E 6	7NO1964	0.04332)
(1323	F 1	6NO1964	0.01254)	(1324	F 2	6NO1964	0.00466)	(1325	F 3	6NO1964	0.00252)
(1336	C 3	27JA1967	0.00770)	(1337	C 3	2MR1967	0.12199)	(1338	C 3	28MR1967	0.61617)
(1339	C 5	28MR1967	0.60173)	(1340	C 7	28MR1967	0.15271)	(1341	A 3	19AP1967	0.16597)
(1342	A 4	19AP1967	0.42228)	(1343	A 6	19AP1967	0.24316)	(1344	C 3	25AP1967	0.27794)
(1345	C 5	25AP1967	0.39569)	(1346	C 7	21AP1967	0.31245)	(1347	E 2	23AP1967	0.41623)
(1348	E 5	23AP1967	1.34339)	(1368	A 3	4MY1967	0.73516)	(1369	A 4	4MY1967	0.27582)
(1370	A 6	3MY1967	0.19105)	(1371	C 3	4MY1967	0.59098)	(1372	C 5	5MY1967	1.48957)
(1373	C 7	5MY1967	0.30806)	(1374	E 2	7MY1967	0.52301)	(1375	E 3	7MY1967	0.92639)

(1376	E 5	6MY1967	0.51158)	(1408	A 5	29MY1967	C.20570)	(1409	A 4	23MY1967	0.04166)
(1410	A 6	24MY1967	0.33266)	(1411	C 3	31MY1967	C.31592)	(1412	C 5	31MY1967	C.38303)
(1413	C 7	25MY1967	0.13267)	(1414	E 2	28MY1967	C.05709)	(1415	E 3	28MY1967	C.15740)
(1416	E 5	28MY1967	0.15308)	(1431	A 3	12JN1967	C.02317)	(1432	A 4	13JN1967	C.22479)
(1433	C 3	17JN1967	0.41338)	(1434	C 5	17JN1967	C.14356)	(1435	C 7	13JN1967	C.11050)
(1436	E 2	15JN1967	0.10494)	(1437	E 3	15JN1967	C.07536)	(1438	E 5	14JN1967	C.12346)
(1446	A 3	11JL1967	0.00245)	(1449	C 3	16JL1967	C.06496)	(1450	C 5	16JL1967	C.00571)
(1451	C 7	16JL1967	0.00197)	(1452	E 2	14JL1967	C.00852)	(1453	E 3	15JL1967	C.07330)
(1504	A 3	28AU1967	0.00247)	(1505	A 4	28AU1967	C.01031)	(1508	C 3	25E1967	C.C0406)
(1511	E 2	15E1967	0.00307)	(1512	E 3	15E1967	C.00393)	(1532	A 3	18SE1967	C.00329)
(1534	A 6	19SE1967	0.00620)	(1537	E 3	24SE1967	C.01296)	(1538	E 5	23SE1967	C.00592)
(1541	E 2	11OC1967	0.00532)	(1377	GS 1	5MY1967	C.18999)	(1378	GS 2	5MY1967	C.11354)
(1379	GS 3	9MY1967	0.06499)	(1380	GS 4	9MY1967	C.10762)	(1381	GS 5	10MY1967	C.05009)
(1382	GS 6	10MY1967	0.11380)	(1383	GS 7	10MY1967	C.08287)	(1384	GS 8	10MY1967	C.15713)
(1385	GS 9	10MY1967	0.13892)	(1386	GS10	12MY1967	C.11204)	(1387	GS11	12MY1967	C.27725)
(1388	GS12	12MY1967	0.25339)	(1389	GS13	12MY1967	C.10056)	(1390	GS14	12MY1967	C.24662)
(1391	GS15	12MY1967	0.20112)	(1392	GS16	12MY1967	C.12636)	(1393	GS17	13MY1967	C.34791)
(1394	GS18	13MY1967	1.02350)	(1395	GS19	13MY1967	C.08690)	(1396	GS20	13MY1967	C.21036)
(1397	GS21	13MY1967	0.03859)	(1398	GS22	14MY1967	C.21253)	(1554	GS 1	30C1967	C.02135)
(1557	GS 4	30C1967	0.01121)	(1560	GS 8	4DC1967	C.01417)	(1562	GS10	5DC1967	C.00247)
(1563	GS11	5DC1967	0.00701)	(1564	GS12	5DC1967	C.00165)	(1565	GS13	5DC1967	C.00507)
(1567	GS15	5DC1967	0.00953)	(1568	GS16	5CC1967	C.00289)	(1569	GS17	5CC1967	C.01932)
(1570	GS18	5DC1967	0.01983)	(1571	GS19	6DC1967	C.00176)	(1572	GS20	6DC1967	C.00180)
(1573	GS21	6DC1967	0.00224)	(1574	GS22	6DC1967	0.00288)	(1575	GS28	6DC1967	C.00645)
(1544	MU 1	2DC1967	0.00238)	(1546	LU 1	2DC1967	0.03501)	(1520	MO 1	18SE1967	C.01886)
(1521	SM 1	18SE1967	0.04616)	(1522	BM 1	18SE1967	0.02188)	(1526	MO 1	20SE1967	C.06827)
(1527	TR 1	20SE1967	0.01258)	(1528	SB 1	20SE1967	0.02888)	(1529	KN 1	20SE1967	C.15589)
(1530	FR 1	24SE1967	0.01000)	(1531	GM 1	25SE1967	0.03381)	(1545	WL 1	2DC1967	C.02703)
(1549	MO 1	4DC1967	0.02741)	(1551	ES 1	5DC1967	C.C2396)	(1552	SM 1	6CC1967	C.C6603)
(1550	MR 1	5DC1967	0.06195)	(1553	SG 1	6CC1967	0.02203)	(1428	MU 2	29MY1967	C.07533)
(1426	MS 2	29MY1967	0.97638)	(1351	MI 2	21AP1967	C.26067)	(1427	LU 2	29MY1967	C.82324)
(1417	MO 2	22MY1967	0.65799)	(1418	SM 2	22MY1967	0.07776)	(1350	BM 2	19AP1967	C.55911)
(1425	RA 2	25MY1967	0.22102)	(1399	PW 2	5MY1967	0.32644)	(1401	MO 2	6MY1967	C.42509)
(1402	TR 2	6MY1967	0.88636)	(1400	SB 2	6MY1967	C.30975)	(1352	KN 2	21AP1967	C.36076)
(1353	FR 2	23AP1967	0.04219)	(1354	GM 2	25AP1967	C.08976)	(1429	WL 2	25MY1967	C.33974)
(1403	CA 2	10MY1967	0.23539)	(1404	MG 2	10MY1967	0.05081)	(1405	ES 2	12MY1967	C.04515)
(1407	SM 2	14MY1967	0.08957)	(1349	CI 2	19AP1967	C.74718)	(1406	GB 2	13MY1967	C.04044)
(1419	BU 2	23MY1967	C.43940)	(142C	BH 2	23MY1967	C.18127)	(1421	CH 2	23MY1967	C.32963)
(1422	GA 2	23MY1967	0.29122)	(1423	WA 2	25MY1967	1.43879)	(1424	KN 2	25MY1967	C.46629)

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(3540	CH	11MY1879	0.00488)	(446509	CH	MR1967	C.00455)	(446906	CH	MY1967	C.CC465)
(446907	CH	JL1967	0.00099)	(446747	EV	1AU1937	C.00248)	(446752	EV	19SE1937	C.02177)
(1253	C* 2	18JL1964	0.00456)	(1254	D 2	19JL1964	C.00958)	(1256	E 2	14JL1964	C.00516)
(1257	E 3	14JL1964	0.01914)	(1258	F 1	6JL1964	C.00236)	(1260	F 3	6JL1964	C.00764)
(1279	E 1	16SE1964	0.00393)	(1287	F 3	15SE1964	C.00500)	(1445	B 6	14OC1964	C.00652)
(1374	E 2	7MY1967	0.02690)	(1375	E 3	7MY1967	0.01203)	(1376	E 5	6MY1967	C.00843)
(1412	C 5	31MY1967	0.01263)	(1414	E 2	28MY1967	C.00336)	(1432	A 4	13JN1967	C.01022)
(1433	C 3	17JN1967	0.00646)	(1436	E 2	15JN1967	0.00362)	(1446	A 3	11JL1967	C.00489)
(1447	A 4	11JL1967	C.00234)	(1450	C 5	16JL1967	C.00190)	(1452	E 2	14JL1967	C.00639)
(1453	E 3	15JL1967	0.00596)	(1511	E 2	15E1967	0.00307)	(1512	E 3	15E1967	C.01971)
(1379	GS 3	9MY1967	0.00619)	(1380	GS 4	9MY1967	C.00336)	(1381	GS 5	10MY1967	C.00954)
(1383	GS 7	10MY1967	0.03743)	(1384	GS 8	10MY1967	C.05176)	(1385	GS 9	10MY1967	C.00235)
(1386	GS10	12MY1967	0.00862)	(1392	GS16	12MY1967	C.01233)	(1394	GS18	13MY1967	C.05333)
(1395	GS19	13MY1967	0.00587)	(1397	GS21	13MY1967	C.00131)	(1398	GS22	14MY1967	C.00306)
(1555	GS 2	3DC1967	0.00353)	(1560	GS 8	4DC1967	C.00472)	(1544	MU 1	2CC1967	C.00238)
(1521	SM 1	18SE1967	0.00577)	(1552	SM 1	6DC1967	0.01981)	(1550	MR 1	5DC1967	C.02478)
(1428	MU 2	29MY1967	0.00301)	(1426	MS 2	29MY1967	0.03150)	(1351	MI 2	21AP1967	C.00621)
(1427	LU 2	29MY1967	0.01211)	(1417	MO 2	22MY1967	0.01122)	(1350	BM 2	19AP1967	C.00441)
(1399	PW 2	5MY1967	0.00680)	(1352	KN 2	21AP1967	0.02577)	(1353	FR 2	23AP1967	C.01055)
(1354	GM 2	25AP1967	0.01726)	(1429	WL 2	25MY1967	0.03185)	(1403	CA 2	10MY1967	C.15692)
(1404	MG 2	10MY1967	0.C127C)	(							

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592 NISPECOF TOT NO OF STATIONS 65

(446924	CH	10MY1946	C.CCC71)	(446758	EV	5JN1937	0.00357)	(446784	EV	17JL1937	C.02417)
(1224	B 6	18MY1964	0.00196)	(1231	E 3	18MY1564	C.CC245)	(1439	B 6	5JN1964	C.CC200)
(1243	E 6	13JN1964	0.00209)	(1257	E 3	14JL1964	0.00239)	(1258	F 1	6JL1964	C.CC236)
(1260	F 3	6JL1964	0.CC191)	(1268	E 2	15AU1964	C.00274)	(1269	E 3	15AU1964	C.CC274)
(1337	C 3	2MR1967	0.00441)	(1338	C 3	28MR1967	C.10975)	(1339	C 5	28MR1967	C.C2806)
(1340	C 7	28MR1967	C.CC654)	(1341	A 3	19AP1967	C.01627)	(1342	A 4	19AP1967	C.21475)
(1343	A 6	19AP1967	0.00417)	(1344	C 3	25AP1967	C.C0496)	(1345	C 5	25AP1967	C.3C018)
(1346	C 7	21AP1967	C.CC267)	(1347	E 2	23AP1967	C.03577)	(1348	E 5	23AP1967	C.2111C)
(1368	A 3	4MY1967	0.05655)	(1369	A 4	4MY1967	C.00765)	(1370	A 6	3MY1967	C.C1381)
(1372	C 5	5MY1967	0.04611)	(1373	C 7	5MY1967	C.00285)	(1374	E 2	7MY1967	C.C2C92)
(1375	E 3	7MY1967	C.01202)	(1376	E 5	6MY1967	0.01405)	(1412	C 5	31MY1967	C.C1684)
(1433	C 3	17JN1967	0.00646)	(1434	C 5	17JN1967	C.00598)	(1511	E 2	15E1967	C.CC3C7)
(1512	E 3	15E1967	C.CC393)	(1379	GS 3	9MY1967	C.00309)	(1380	GS 4	9MY1967	C.CC168)
(1382	GS 6	10MY1967	0.02220)	(1383	GS 7	10MY1967	0.00267)	(1384	GS 8	10MY1967	C.CC37C)
(1386	GS10	12MY1967	0.CC575)	(1387	GS11	12MY1967	C.00396)	(1394	GS18	13MY1967	C.0C344)
(1557	GS 4	30C1967	0.00374)	(1562	GS10	5DC1967	C.C0247)	(1566	GS14	5CC1967	C.CC183)
(1528	SB 1	20SE1967	0.01444)	(1545	WL 1	2CC1967	C.01351)	(1551	ES 1	5DC1967	C.CC799)
(1550	MR 1	5CC1967	0.01239)	(1428	MU 2	29MY1967	C.CC301)	(1426	MS 2	29MY1967	C.01050)
(1351	MI 2	21AP1967	C.CC910)	(1427	LU 2	29MY1967	C.02421)	(1417	MO 2	22MY1967	C.1C842)
(1401	MO 2	6MY1967	0.01176)	(1402	TR 2	6MY1967	C.C0541)	(1400	SB 2	6MY1967	C.01191)
(1354	GM 2	25AP1967	C.02264)	(1403	CA 2	10MY1967	C.C1308)	(1349	CI 2	19AP1967	C.C1796)
(1422	GA 2	23MY1967	0.00511)	(1423	WA 2	25MY1967	0.02141)	(			

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593 NISPECCG TOT NO OF STATIONS 22

146758	EV		5JN1937	0.00357	146747	EV		1AU1937	0.00248	1268	E 2		15AU1964	C.CC274
1274	D 1		17SE1964	0.00469	1279	E 1		16SE1964	0.00393	1556	GS 3		30C1967	C.CC521
1572	GS20		6CC1967	0.00090	1544	MU 1		2CC1967	C.02859	1546	LU 1		2CC1967	C.28510
1521	SM 1		18SE1967	0.02885	1526	MO 1		20SE1967	0.00569	1530	PR 1		24SE1967	C.Ce001
1531	GM 1		25SE1967	0.00845	1545	WL 1		2CC1967	6.91939	1548	CA 1		3CC1967	C.C1272
1549	MO 1		4CC1967	0.01370	1552	SM 1		6DC1967	C.C066C	1550	PR 1		5CC1967	C.C7434
1417	MO 2		22MY1967	0.00748	1354	GM 2		25AP1967	C.00173	1429	WL 2		25MY1967	C.C1062
1404	MO 2		10MY1967	0.02541										

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594 NISPECCH TOT NO OF STATIONS 7

146752	EV		15SE1937	C.C2177	1270	F 1		10AU1964	0.00272	1275	D 2		17SE1964	C.CC645
1285	F 1		15SE1964	0.02932	1554	GS 1		30C1967	0.00358	1546	LU 1		2DC1967	C.C2001
1403	CA 2		10MY1967	C.C13C9										

Nitzschia sp. #9.

595 NISPECCI TOT NO OF STATIONS 3

1340	C 7		28MR1967	C.CCC72	1341	A 3		19AP1967	C.CC108	1536	F 2		24SE1967	C.CC545

Nitzschia sp. #10.

596 NISPECCJ TOT NO OF STATIONS 1

1250	C 8		10JL1964	C.CC411									

Nitzschia sp. #11.

597 NISPECCK TOT NO OF STATIONS 2

1272	C* 1		10SE1964	0.00410	1550	PR 1		5CC1967	C.C1239				

Nitzschia sp. #12.

598 NISPECCL TOT NO OF STATIONS 4

1550	PR 1		5CC1967	0.03717	1426	MS 2		25MY1967	C.01050	1350	BM 2		19AP1967	C.CC661
1404	MO 2		10MY1967	0.C127C										

Nitzschia sp. #14.

599 NISPECCN TOT NO OF STATIONS 1

1511	E 2		15SE1967	0.00307									

Nitzschia sp. #15.

600 NISPECCO TOT NO OF STATIONS 4

1544	MU 1		2DC1967	C.01668	1546	LU 1		2CC1967	C.03001	1550	PR 1		5DC1967	C.02478
1428	MU 2		25MY1967	0.01205										

Nitzschia sp. #16.

601 NISPECCP TOT NO OF STATIONS 4

1544	MU 1		2DC1967	0.00715	1546	LU 1		2CC1967	C.00500	1529	RM 1		20SE1967	C.01199
1545	WL 1		20C1967	0.03379										

Nitzschia sp. #17.

602 NISPECCQ TOT NO OF STATIONS 1

1546	LU 1		2CC1967	C.02501									

Nitzschia sp. #18.

603 NISPECOB TOT NO OF STATIONS 2

(1522	BH 1	18SE1967	C.10025)	(1550	MR 1	50C1967	0.01239)	(			

Genus *Opephora* Petit

Petit, Miss. Sci. Cap Horn, 1882-1883, Bot., Vol. 5, p. 130. 1888.

Members of the genus *Opephora* find their primary habitat in periphyton communities. Occasional specimens are taken in plankton collections from Lake Michigan, especially in nearshore areas.

Opephora ansata Hohn and Hellerm.

Opephora ansata Hohn and Hellerman, Trans. American Micr. Soc., 82(3): 321, pl. 1, fig. 13, 1963.

604 OPSPECOB TOT NO OF STATIONS 37

(60973	CH	1876	0.04724)	(2541	CH	1FE1881	C.00578)	(46921	CH	23NC1945	C.CCC65)
(46915	CH	20FE1946	0.00569)	(46924	CH	10MY1946	0.00071)	(46916	CH	4MY1947	C.00034)
(46921	CH	21AU1947	0.00097)	(46758	EV	5JN1937	0.02853)	(46764	EV	17JL1937	C.CC806)
(46757	EV	25JL1937	0.01926)	(46747	EV	1AU1937	0.01733)	(46763	EV	23AU1937	C.34497)
(46752	EV	15SE1937	0.17414)	(46760	EV	22SE1937	0.00985)	(46744	EV	6OC1937	C.CC975)
(46748	EV	13OC1937	0.06405)	(46767	EV	27CC1937	0.02708)	(46749	EV	12MR1938	C.02427)
(46768	EV	16MR1938	0.05880)	(46762	EV	18MR1938	C.17644)	(46755	EV	19MY1938	C.01013)
(1264	C* 1	10AU1964	0.CC193)	(1279	E 1	16SE1964	0.00393)	(1285	F 1	15SE1964	C.C1165)
(1303	E 6	13OC1964	0.00560)	(1340	C 7	28MR1967	0.00218)	(1538	E 5	23SE1967	C.08286)
(1541	E 2	11OC1967	0.01597)	(1543	E 5	10CC1967	0.01437)	(1388	GS12	12MY1967	C.0C603)
(1392	GS16	12MY1967	0.00616)	(1394	GS18	13MY1967	0.00344)	(1358	ES22	14MY1967	C.CC607)
(1567	GS15	50C1967	0.00318)	(1571	GS19	60C1967	C.00059)	(1574	GS22	60C1967	3.62423)
(1575	GS20	40C1967	C.CC129)	(							

Opephora martyi Hérib.

Opephora martyi Héribaud, Diat. Foss. Auvergne, Vol. 1, p. 43, pl. 8, fig. 20. 1902.

604 OPMARTYI TOT NO OF STATIONS 47

(3540	CH	11PY1879	0.00466)	(46516	CH	4MY1947	C.00034)	(46768	EV	16MR1938	C.02940)
(1279	E 1	16SE1964	0.08639)	(1284	E 6	17SE1964	0.00318)	(1285	F 1	15SE1964	0.00582)
(1257	D 6	14OC1964	0.00190)	(1320	E 4	7NO1964	C.00207)	(1372	C 5	5MY1967	C.0C355)
(1532	A 3	18SE1967	0.0C329)	(1533	A 4	19SE1967	0.00464)	(1377	ES 1	9MY1967	C.0C396)
(1388	GS12	12MY1967	0.01207)	(1390	GS14	12MY1967	0.00587)	(1342	GS16	12MY1967	0.0C925)
(1396	GS20	13MY1967	0.00074)	(1554	GS 1	30C1967	C.00356)	(1557	GS 4	30C1967	C.00747)
(1558	GS 5	40C1967	0.00396)	(1565	GS13	50C1967	C.07099)	(1567	GS15	50C1967	C.0C635)
(1569	GS17	50C1967	0.00149)	(1571	GS19	60C1967	0.00176)	(1572	GS20	60C1967	C.00270)
(1574	GS22	60C1967	0.01438)	(1575	GS20	60C1967	0.00129)	(1544	MU 1	20C1967	C.0C238)
(1547	MS 1	20C1967	0.01597)	(1546	LU 1	20C1967	0.01501)	(1520	MO 1	18SE1967	C.C2357)
(1521	SH 1	18SE1967	0.02308)	(1522	BH 1	18SE1967	0.00182)	(1525	PW 1	20SE1967	0.01393)
(1526	MO 1	20SE1967	0.00565)	(1531	GH 1	25SE1967	0.01691)	(1545	WL 1	20C1967	C.0C676)
(1550	MR 1	50C1967	0.28497)	(1553	SG 1	60C1967	0.00734)	(1426	MS 2	29MY1967	0.04199)
(1427	LU 2	29MY1967	0.04843)	(1417	MO 2	22MY1967	0.00374)	(1350	BH 2	19AP1967	C.01762)
(1354	GH 2	25AP1967	0.00518)	(1404	MQ 2	10MY1967	0.05081)	(1407	SH 2	14MY1967	C.01194)
(1349	CI 2	19AP1967	0.00359)	(1406	GB 2	13MY1967	C.00539)	(			

Species *incertae sedis*

Opephora sp. #1.

605 OPSPECOA TOT NO OF STATIONS 4

(46923	CH	22NO1946	0.00219)	(1285	F 1	15SE1964	0.00582)	(1565	GS13	50C1967	C.0C587)
(1350	BH 2	19AP1967	0.00441)	(							

Opephora sp. #2.

607 OPSPECOC TOT NO OF STATIONS 9

(1565	GS13	50C1967	0.00507)	(1571	GS19	60C1967	0.00293)	(1573	GS21	60C1967	C.00112)
(1546	LU 1	20C1967	0.00500)	(1522	BH 1	18SE1967	0.00182)	(1545	WL 1	20C1967	C.0C676)
(1550	MR 1	50C1967	0.28497)	(1553	SG 1	60C1967	0.00734)	(1350	BH 2	19AP1967	C.01982)

Genus *Oestrupia* Heid.
Heiden *ex* Hustedt, Ber. Deutsch. Bot. Ges., 53(1):16. 1935.

Although the growth habit of the freshwater members of the genus *Oestrupia* is poorly known, the limited information available indicates that they are most often found in benthic communities. The entities known from Lake Michigan are rare in plankton collections and those noted usually come from nearshore localities.

Oestrupia zachariasi (Reich.) comb. nov.

Navicula (Caloneis) zachariasi Reichelt, Forshungsber. Biol. Sta. Plön, 14:199. 1903.

608 OEZACHAR ICT NO OF STATIONS 3

(1565	GS13	5OC1967	C.01014)	(1521	SH 1	18SE1967	0.00577)	(1545	WL 1	20C1967	C.04054)

Oestrupia zachariasi var. *undulata* (Schulz) comb. nov.

Caloneis baltica var. *undulata* Schulz, Bot. Arch., 13:203, fig. 76. 1926.

609 OEZACHVU ICT NO OF STATIONS 7

146915	CH	20FE1946	0.00569)	(1279	E 1	16SE1964	0.00393)	(1398	GS22	14MY1967	C.00304)
(1565	GS13	5OC1967	0.01521)	(1574	GS22	60C1967	0.00288)	(1546	LU 1	20C1967	C.01000)
(1527	ER 1	20SE1967	0.00625)	(							

Genus *Pinnularia* Ehr. nom. cons.
Ehrenberg, Ber. Akad. Wiss. Berlin, 1843:45. 1843.

Most species of the genus *Pinnularia* find their primary habitat in benthic communities. The rare representatives of the genus that are taken in plankton collections from Lake Michigan are undoubtedly derived from such communities within the lake or from sources outside the lake proper.

Pinnularia abaujensis (Pant.) Ross

Navicula abaujensis Pantocsek, Beitr. Foss. Bacill. Ungarns, Theil 2, p. 41, pl. 3, fig. 54. 1889.
Pinnularia abaujensis (Pant.) Ross, Natl. Mus. Canada Bull., 97(2):199, pl. 10, fig. 1. 1947.

Coll: 1800.

Pinnularia abaujensis var. *linearis* (Hust.) Patr.

Pinnularia gibba var. *linearis* Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 327, fig. 604. 1930.

Coll: 1800.

Pinnularia acrosphaeria Wm. Smith

Pinnularia acrosphaeria Wm. Smith, Syn. British Diat., Vol. 1, p. 58, pl. 19, fig. 183. 1853.

Coll: 1818.

Pinnularia biceps Greg.

Pinnularia biceps Gregory, Quart. J. Micr. Sci., 4:8, pl. 1, fig. 28. 1856.

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61C  PIBICEPS TOT NO OF STATIONS    1
( 1350    BH 2      19AP1967   0.00220 )  (
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Pinnularia biceps fo. *petersenii* Ross

Pinnularia interrupta fo. *minor* Peterson, Bot. Iceland, Vol. 2, Pt. 2, p. 405, fig. 25. 1928.
Pinnularia biceps fo. *petersenii* Ross, Natl. Mus. Canada Bull., 97(2):201, pl. 9, fig. 11. 1947.

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611  PIBICEFP TOT NO OF STATIONS    1
( 1404    MQ 2      10MY1967   0.01270 )  (
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Pinnularia borealis Ehr.

Pinnularia borealis Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:420, pl. 1(2), fig. 6. 1843.

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612  PIBOREAL TOT NO OF STATIONS    1
( 1395    GS19      13MY1967   0.00117 )  (
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Pinnularia brebissonii (Kütz.) Rabh.

Navicula brebissonii Kützing, Bacill., p. 93, pl. 3, fig. 49. 1844.
Pinnularia brebissionii (Kütz.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 222. 1864.

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613  PIBREBIS TOT NO OF STATIONS    5
(46920    CH        20DE1946   0.00031 )  (46516    CH        4MY1947    0.00034 )  (46764    EV        17JL1937   0.00806 )
(46759    EV        19MY1938   0.00338 )  ( 1423    MA 2      25MY1947   0.00428 )  (
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Pinnularia burkii Patr.

Pinnularia burkii Patrick, Farlowia, 2(2):189, pl. 3, fig. 1. 1945.

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614  PIBURKII TOT NO OF STATIONS    1
( 1354    CH 2      25AP1967   0.00173 )  (
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Pinnularia globiceps var. *krockii* (Grun.) Cleve

Navicula krockii Grunow *in*: Mojsisovics and Neumayer, Beitr. Paläontol. Österreich-Ungarns, Bd. 2, Heft 4, p. 155, pl. 30, fig. 40. 1882.
Pinnularia globiceps var. *krockii* (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):77. 1895.

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615  PIGLOBVK TOT NO OF STATIONS    1
( 1388    GS13      12MY1967   0.00258 )  (
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Pinnularia interrupta var. *crassior* (Grun.) Cleve

Navicula globiceps var. *crassior* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):27, pl. 1, fig. 13. 1880.
Pinnularia interrupta var. *crassior* (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):76. 1895.

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616  PIINTEVC TOT NO OF STATIONS    3
( 1388    GS12      12MY1967   0.00603 )  ( 1389    GS13      12MY1967   0.00258 )  ( 1417    MQ 2      22MY1967   0.00374 )
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Pinnularia legumen (Ehr.) Ehr.

Navicula legumen Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:141. 1841.
Pinnularia legumen (Ehr.) Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:301, pl. 4(1), fig. 7. 1843.

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617  PILEGUME TOT NO OF STATIONS    1
( 1404    MO 2       10MY1967   0.01270 )   (
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Pinnularia leptosoma (Grun.) Cleve

Navicula leptosoma Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 12, fig. 29. 1880.
Pinnularia leptosoma (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):74. 1895.

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618  PILEPTCS TOT NO OF STATIONS    1
( 1550    MR 1       50C1967   0.02478 )   (
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Pinnularia major (Kütz.) Rabh.

Frustulia maior Kützing, Linnaea, 8:547, pl. 14, fig. 25. 1833.
Navicula major (Kütz.) Kützing, Bacill., p. 97, pl. 4, figs. 19-20. 1844.
Pinnularia major (Kütz.) Rabenhorst, Süssw.-Diat., p. 42, pl. 6, fig. 5. 1853.

Coll: 1552.

Pinnularia stomatophora (Grun.) Cleve

Navicula stomatophora Grunow *in*: A. Schmidt, Atlas Diat., pl. 44, figs. 27-29. 1876.
Pinnularia stomatophora (Grun.) Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):27. 1891.

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620  PISPECOC TOT NO OF STATIONS    1
( 3541    CH         1FE1881   0.00578 )   (
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Pinnularia tibetana Hust.

Pinnularia tibetana Hustedt *in*: Hedin, South. Tibet, Vol. 6, part 3 (Bot.) p. 129, pl. 9, figs. 3-5. 1922.

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621  PISPECOD TOT NO OF STATIONS    1
(46764    EV         17JL1937   C.01612 )   (
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Pinnularia undulata Greg.

Pinnularia undulata Gregory, Quart. J. Micr. Sci., 2:97, pl. 4, fig. 10. 1854.

Coll: 862.

Pinnularia viridis (Nitz.) Ehr.

Bacillaria viridis Nitzsch, Neue Schrift. Naturf. Ges. Halle, 3(1):97, pl. 6, figs. 1-3. 1817.
Pinnularia viridis (Nitz.) Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841: 305, pl. 1(1), fig. 7. 1843.

619 PIVIRIDI TCT NO OF STATIONS 2

(3541	CH		1FE1881	0.01956)	(1390	GS14		12PY1967	C.00587)	(			

Genus *Rhizosolenia* Ehr.

Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:134. 1843.

All known members of the genus *Rhizosolenia* are euplanktonic. Most of its members are marine, however the following species are found only in fresh water and are widely reported from the Great Lakes.

Rhizosolenia eriensis H. L. Smith

Rhizosolenia eriensis H. L. Smith, The Lens, 1:44. 1872.

Cells bacilliform with a single conspicuous spine at each end. Valves much reduced, appearing as a cap at the end of the cells. Cells elongated in the pervalvar axis and laterally compressed. Specimens from Lake Michigan 35-150μ long, 10-25μ broad in greatest diameter, only 2-4μ in least diameter. Because of the construction of the frustule, specimens are almost always observed in girdle view. Intercalary bands numerous, constructed in the form of a split-ring with cuneate ends so that the ends of the "ring" overlap one side of its own opposite end and one side of the next successive intercalary band. The line of imbrication of the intercalary bands is in the median of the long axis of the cell and is quite conspicuous. The frustule is very lightly silicified and is usually destroyed by standard diatom cleaning procedures. In living cells the chromatophores occur near the center of the cell. The end spines are excentric and usually occur on opposite sides of the ends of the cells.

This species is common in plankton collections from Lake Michigan, usually reaching its maximum abundance in the late spring or early fall.

622 RHERIENS TCT NO OF STATIONS 252

(46973	CH	1876	0.87388)	(3541	CH		1FE1881	0.00978)	(46921	CH	23NO1945	C.CC388)
(46908	CH	DE1945	0.03021)	(46917	CH		12JA1946	0.04186)	(46915	CH	20FE1946	C.17641)
(46914	CH	1SAP1946	0.CC320)	(46924	CH		10MY1946	0.22927)	(46923	CH	22NO1946	C.C1530)
(46920	CH	20CE1946	0.00031)	(46CC5	CH		JA1947	0.01471)	(46909	CH	MR1947	C.10018)
(46916	CH	4MY1947	0.35286)	(46SC6	CH		MY1947	1.55304)	(46919	CH	5JN1947	C.27162)
(46907	CH	JL1947	0.04586)	(46522	CH		21AU1947	0.00242)	(46758	EV	5JN1937	C.66329)
(46771	EV	11JN1937	4.65979)	(46743	EV		20JA1937	C.19697)	(46764	EV	17JL1937	C.12087)
(46757	EV	25JL1937	0.01444)	(46747	EV		1AU1937	0.01238)	(46763	EV	23AU1937	C.06088)
(46765	EV	3CAU1937	0.02789)	(46760	EV		22SE1937	0.01970)	(46750	EV	24SE1937	C.04242)
(46744	EV	6OC1937	0.01463)	(46748	EV		13OC1937	0.04270)	(46767	EV	27OC1937	C.23984)
(46745	EV	12MR1938	0.18206)	(46768	EV		16MR1938	0.23519)	(46762	EV	18MR1938	C.19850)
(46751	EV	30MR1938	0.35730)	(46772	EV		18AP1938	0.11356)	(46756	EV	27AP1938	C.79923)
(46759	EV	19MY1938	1.60702)	(46761	EV		27MY1938	C.99204)	(46766	EV	14DE1938	C.09506)
(1224	B 4	18MY1964	C.0C196)	(1225	C 6		15MY1964	0.01568)	(1226	C 7	16MY1964	C.C4186)
(1227	C* 2	13MY1964	0.00219)	(1228	D 2		14MY1964	0.00584)	(1229	D 5	14MY1964	C.03595)
(1230	E 2	16MY1964	0.C1185)	(1231	E 2		16MY1964	C.01712)	(1232	E 5	16MY1964	C.01044)
(1233	B 3	5JN2964	0.03096)	(1234	B 3		18JN1964	C.98403)	(1235	C 7	16JN1964	C.C5649)
(1439	B 6	5JN1964	C.76923)	(1236	C* 1		8JN1964	0.00875)	(1237	C* 2	8JN1964	C.15077)
(1238	D 3	11JN1964	0.02800)	(1240	D 6		10JN1964	0.05215)	(1241	E 2	13JN1964	C.10350)
(1242	E 3	13JN1964	C.0C749)	(1243	E 6		13JN1964	0.32156)	(1244	F 1	11JN1964	C.0C439)
(1245	F 2	11JN1964	0.01729)	(1246	F 3		11JN1964	0.04183)	(1247	B 3	14JL1964	1.49400)
(1248	B 3	24JL1964	C.68968)	(1440	E 6		11JL1964	4.38516)	(1441	B 6	24JL1964	2.92958)
(1249	C 3	8JL1964	0.01358)	(1250	C 6		10JL1964	1.62795)	(1251	C 7	16JL1964	C.23466)
(1252	C* 1	16JL1964	0.53835)	(1253	C* 2		16JL1964	C.C8673)	(1254	D 2	15JL1964	2.41333)
(1255	D 5	15JL1964	5.21020)	(1256	E 2		14JL1964	1.79527)	(1257	E 3	14JL1964	1.CC490)
(1258	F 1	6JL1964	1.98221)	(1259	F 2		6JL1964	2.16906)	(1260	F 3	6JL1964	2.13916)
(1261	B 3	2AU1964	0.01766)	(1262	B 3		17AU1964	0.C3780)	(1442	B 6	2AU1964	1.43296)
(1443	B 6	16AU1964	0.01581)	(1264	C* 1		10AU1964	C.07916)	(1265	C* 2	1CAU1964	C.44710)
(1266	D 3	18AU1964	4.91090)	(1267	D 6		18AU1964	0.C2810)	(1268	E 2	15AU1964	2.48933)
(1269	E 3	15AU1964	C.29600)	(1270	F 1		10AU1964	0.10619)	(1444	B 6	19SE1964	C.00606)
(1271	C 7	22SE1964	0.02611)	(1272	C* 1		10SE1964	0.00821)	(1273	C* 2	10SE1964	C.C2688)
(1274	D 1	17SE1964	0.02815)	(1275	D 2		17SE1964	0.26450)	(1276	D 3	18SE1964	0.C4470)
(1277	D 4	18SE1964	0.02479)	(1278	D 6		18SE1964	C.01153)	(1279	E 1	16SE1964	C.2C811)
(1280	E 2	16SE1964	C.C4085)	(1281	E 3		16SE1964	0.11380)	(1282	E 4	16SE1964	C.15512)
(1283	E 5	16SE1964	0.25745)	(1284	E 6		17SE1964	C.26372)	(1285	F 1	15SE1964	0.08736)
(1286	F 2	15SE1964	C.16419)	(1287	F 3		15SE1964	0.32026)	(1288	B 3	15OC1964	C.07619)
(1445	B 6	14OC1964	0.68493)	(1289	C 7		14CC1964	C.80032)	(1290	C* 1	16OC1964	C.C3411)
(1291	C* 2	16DC1964	0.01468)	(1292	D 1		15DC1964	0.23852)	(1293	D 2	19DC1964	C.56127)

(1294	D 3	15DC1964	0.57685)	(1295	D 4	15DC1964	C.74920)	(1296	D 5	14DC1964	C.6C156)
(1297	D 6	14DC1964	0.33319)	(1298	E 1	12DC1964	C.10233)	(1299	E 2	12DC1964	C.33930)
(1300	E 3	13DC1964	0.70163)	(1301	E 4	13DC1964	3.09105)	(1302	E 5	13DC1964	1.7CC54)
(1303	E 6	13DC1964	0.82279)	(1304	F 1	11DC1964	C.14571)	(1305	F 2	11DC1964	C.1C178)
(1306	F 3	11DC1964	0.04712)	(1307	B 6	NO1964	C.26699)	(1308	C 7	6ND1964	1.38386)
(1309	C* 1	10ND1964	1.12555)	(1310	C* 2	10ND1964	2.69841)	(1311	D 1	8ND1964	2.34766)
(1312	D 2	8ND1964	C.94366)	(1313	D 3	9ND1964	2.70270)	(1314	D 4	9ND1964	1.2C575)
(1315	D 5	9ND1964	1.91083)	(1316	D 6	9ND1964	C.34376)	(1317	E 1	6ND1964	2.68C55)
(1318	E 2	7ND1964	2.92982)	(1319	E 3	7ND1964	2.93247)	(1320	E 4	7ND1964	4.34333)
(1321	E 5	7ND1964	3.79876)	(1322	E 6	7ND1964	7.44492)	(1323	F 1	6ND1964	C.15052)
(1324	F 2	6ND1964	0.06289)	(1325	F 3	6ND1964	C.00252)	(1336	C 3	27JA1967	C.74134)
(1337	C 4	2MR1967	1.23459)	(1338	C 5	28MR1967	2.03628)	(1339	C 6	28MR1967	C.37102)
(1340	C 7	28MR1967	C.61C82)	(134[illegible]	A 3	19AP1967	C.27771)	(1342	A 4	19AP1967	1.38957)
(1343	A 6	19AP1967	0.02848)	(1344	C 3	25AP1967	C.21011)	(1345	C 5	25AP1967	3.68399)
(1346	C 7	21AP1967	0.5E08C)	(1347	E 2	23AP1967	C.83570)	(1348	E 5	23AP1967	C.62371)
(1368	A 3	4MY1967	0.00628)	(1369	A 4	4MY1967	C.01491)	(1374	E 2	7MY1967	C.C5380)
(1375	E 3	7MY1967	0.00241)	(1376	E 5	6MY1967	C.01405)	(1408	A 3	23MY1967	C.CC447)
(1409	A 4	23MY1967	0.CC298)	(1410	A 6	24MY1967	C.CC564)	(1411	C 3	21MY1967	C.CC410)
(1412	C 5	31MY1967	C.00842)	(1413	C 7	25MY1967	C.00316)	(1414	E 2	28MY1967	C.C1008)
(1415	E 3	28MY1967	C.00450)	(1416	E 5	28MY1967	C.00875)	(1431	A 3	12JN1967	C.C3605)
(1432	A 4	13JN1967	0.03576)	(1433	C 3	17JN1967	C.56840)	(1434	C 5	17JN1967	C.C3888)
(1435	C 7	13JN1967	0.01575)	(1436	E 2	15JN1967	C.01447)	(1437	E 3	15JN1967	C.C1615)
(1438	E 5	14JN1967	C.01089)	(1446	A 3	11JL1967	1.02735)	(1447	A 4	11JL1967	3.76591)
(1449	C 3	16JL1967	3.74485)	(1450	C 5	16JL1967	2.13272)	(1451	C 7	16JL1967	C.[illegible]9840)
(1452	E 2	14JL1967	C.98862)	(1453	E 3	15JL1967	1.41546)	(1454	E 5	15JL1967	1.[illegible]2036)
(1505	A 4	28AU1967	0.00515)	(1509	C 5	25E1967	0.20692)	(1510	C 7	29AU1967	C.C4948)
(1511	E 2	15E1967	2.57851)	(1512	E 3	15E1967	C.46725)	(1513	E 5	31AU1967	C.04561)
(1532	A 3	18SE1967	0.0C329)	(1536	E 2	24SE1967	C.52626)	(1537	E 3	24SE1967	C.13801)
(1541	E 2	11DC1967	0.02661)	(1542	E 3	11DC1967	C.16273)	(1543	E 5	10DC1967	C.01437)
(1380	GS 4	9MY1967	0.00168)	(1381	GS 5	10MY1967	C.01193)	(1384	GS 8	10MY1967	C.CC185)
(1385	GS 9	10MY1967	0.00471)	(1386	GS10	12MY1967	C.00575)	(1387	GS11	12MY1967	C.C1584)
(1388	GS12	12MY1967	0.00603)	(1389	GS13	12MY1967	C.00258)	(1390	GS14	12MY1967	C.C1174)
(1392	GS16	12MY1967	0.00308)	(1393	GS17	13MY1967	C.00274)	(1394	GS18	13MY1967	C.CC860)
(1395	GS19	13MY1967	0.00235)	(1398	GS22	14MY1967	C.01214)	(1554	GS 1	30C1967	C.31310)
(1555	GS 2	30C1967	0.44845)	(1557	GS 4	3DC1967	C.02616)	(1558	GS 5	4DC1967	C.0C396)
(1560	GS 8	4DC1967	0.02834)	(1561	GS 9	4DC1967	C.00587)	(1562	GS10	5DC1967	C.C2220)
(1563	GS11	5DC1967	0.00935)	(1565	GS13	5DC1967	C.01521)	(1566	GS14	5DC1967	C.00367)
(1568	GS16	5DC1967	0.01010)	(1573	GS21	6DC1967	C.00112)	(1544	MU 1	2DC1967	C.CC238)
(1546	LU 1	2DC1967	C.00500)	(1527	TR 1	20SE1967	C.00629)	(1528	SB 1	20SE1967	C.C1444)
(1529	KW 1	20SE1967	0.01199)	(153C	FR 1	24SE1967	C.C1000)	(1548	CA 1	3DC1967	C.C1272)
(1549	MQ 1	4DC1967	0.0137C)	(1551	ES 1	5DC1967	C.05592)	(1552	SM 1	6DC1967	C.C1981)
(1553	SG 1	6DC1967	0.02936)	(1331	MI 2	21AP1967	C.17688)	(1427	LU 2	29MY1967	C.C2632)
(1399	PW 2	5MY1967	0.01360)	(1402	TR 2	6MY1967	C.01624)	(1400	SB 2	6MY1967	C.01191)
(1352	KW 2	21AP1967	C.18897)	(1354	GM 2	25AP1967	C.01726)	(1403	CA 2	10MY1967	C.01308)
(1405	ES 2	12MY1967	0.03870)	(1349	CI 2	19AP1967	C.01437)	(1419	PU 2	23MY1967	C.C3662)
(1421	GM 2	23MY1967	0.01735)	(1423	MA 2	25MY1967	C.CC856)	(1424	MA 2	25MY1967	C.C1332)

Rhizosolenia gracilis H. L. Smith

Rhizosolenia gracilis H. L. Smith, Proc. Amer. Soc. Micr., 5:177, pl. 1, fig. 1b. 1882.

Cells bacilliform with a single conspicuous spine at each end. Valves much reduced, appearing as a cap at the ends of the cells. Cells elongate in the pervalvar axis and laterally compressed. Specimens from Lake Michigan 55-250μ long, 4-12μ broad at the greatest diameter, only 2-4μ broad at the least diameter. Intercalary bands numerous, similar in structure to a flattened split-ring. Frustules very lightly silicified, structure of the intercalary bands and imbrication line poorly visible. The terminal spines are only slightly excentric and are very long and fine.

This species is occasionally taken in plankton collections from Lake Michigan, most usually in regions that have undergone some degree of eutrophication. It is extremely variable in structure, and malformed specimens are common. This species is usually destroyed in diatom cleaning procedures and is easily overlooked in living material due to its delicate structure.

623 RHLONCIS TCT NC OF STATIONS 123

(60973	CM	1876	0.28342)	(46524	CM	10MY1946	C.00564)	(46909	CM	MR1947	C.00455)
(46916	CM	4MY1947	0.00170)	(46906	CM	MY1947	C.43140)	(46907	CM	JL1943	C.CCC49)
(46771	EV	11JN1937	1.15822)	(46747	EV	14AU1937	C.00495)	(46750	EV	24SE1937	C.CC471)
(46767	EV	27CC1937	0.01547)	(46772	EV	18AP1938	C.01419)	(46756	EV	27AP1938	C.C3526)
(46755	EV	19MY1938	0.00338)	(46761	EV	27MY1938	C.07631)	(1435	B 6	5JN1964	C.69930)
(1440	B 6	11JL1964	2.83745)	(1441	B 6	24JL1964	C.30838)	(1250	C 6	10JL1964	C.5E157)
(1251	C 7	16JL1964	0.01738)	(1252	C* 1	16JL1964	C.01395)	(1253	C* 2	16JL1964	C.01369)
(1254	D 2	15JL1964	0.32178)	(1255	D 5	15JL1964	1.61E4E)	(1256	E 2	14JL1964	C.18136)
(1257	E 3	14JL1964	0.83742)	(1258	F 1	6JL1964	C.00472)	(1259	F 2	6JL1964	C.12705)
(1260	F 3	6JL1964	0.09359)	(1442	B 6	2AU1964	C.01706)	(1265	C* 2	10AU1964	C.01341)
(1268	E 2	15AU1964	0.00821)	(1269	E 3	15AU1964	C.01370)	(1273	C* 2	10SE1964	C.C1613)
(1281	E 3	16SE1964	0.00785)	(1282	E 4	16SE1964	C.01108)	(1283	E 5	16SE1964	C.04291)
(1285	F 1	15SE1964	0.01165)	(1288	B 3	15DC1964	C.00435)	(1445	B 6	14DC1964	C.CC978)
(1289	C 7	14DC1964	0.02199)	(1293	D 2	15CC1964	C.00943)	(1294	D 3	15DC1964	C.C1319)
(1295	D 4	15CC1964	C.C2378)	(1296	D 5	14DC1964	C.C2754)	(1297	D 6	14CC1964	C.CC471)

(1298	E 1	12DC1964	0.00269)	(1299	E 2	12DC1964	0.01257)	(1300	E 3	13DC1964	C.CC716)
(1301	E 4	13DC1964	0.00883)	(1303	E 6	13DC1964	0.00560)	(1304	F 1	11DC1964	C.CC494)
(1305	F 2	11DC1964	0.00173)	(1307	B 6	NO1964	C.01082)	(1308	C 7	6ND1964	C.C2129)
(1309	C* 1	1CND1964	0.02251)	(1310	C* 2	10ND1964	C.03401)	(1311	D 3	8ND1964	C.09287)
(1312	D 2	8ND1964	0.02794)	(1313	D 3	9NC1964	C.10618)	(1314	D 4	9NC1964	C.05742)
(1315	D 5	9ND1964	C.C2275)	(1316	C 6	9ND1964	C.00756)	(1317	E 1	6NC1964	C.19530)
(1318	E 2	7ND1964	C.C2854)	(1319	E 3	7ND1964	C.02095)	(1320	E 4	7ND1964	C.CC827)
(1321	E 5	7ND1964	C.00038)	(1322	E 6	7ND1964	C.CC333)	(1323	F 1	6NC1964	C.CC557)
(1336	C 3	27JA1967	0.00193)	(1337	C 3	2MR1967	0.01911)	(1339	C 5	28MR1967	C.00624)
(1340	C 7	28MR1967	0.00654)	(1341	A 3	19AP1967	C.C1410)	(1342	A 4	19AP1967	0.31581)
(1343	A 6	19AP1967	0.02640)	(1344	C 7	25AP1967	0.01158)	(1345	C 5	25AP1967	C.12475)
(1346	C 7	21AP1967	C.15885)	(1347	E 2	23AP1967	C.02764)	(1348	E 5	23AP1967	C.C5596)
(1368	A 3	4MY1967	0.00628)	(1370	A 6	3MY1967	0.00230)	(1374	E 2	7MY1967	0.02690)
(1376	E 5	6MY1967	C.CC562)	(1411	C 3	31MY1967	0.00410)	(1414	E 2	28MY1967	C.CC336)
(1416	E 5	28MY1967	0.00219)	(1431	A 3	12JN1967	C.04635)	(1432	A 4	13JN1967	0.02044)
(1433	C 3	17JN1967	0.32296)	(1434	C 5	17JN1967	C.CC598)	(1435	C 7	13JN1967	C.C1894)
(1446	A 3	11JL1967	0.85612)	(1447	A 4	11JL1967	C.65494)	(1449	C 3	16JL1967	1.60495)
(1450	C 5	16JL1967	1.33295)	(1451	C 7	16JL1967	C.08267)	(1452	E 2	14JL1967	C.16605)
(1453	E 3	15JL1967	0.25782)	(1454	E 5	15JL1967	0.16603)	(1511	E 2	15SE1967	C.00614)
(1512	E 3	15SE1967	0.02749)	(1538	E 5	23SE1967	C.00552)	(1381	CS 5	10MY1967	C.CC239)
(1383	GS 7	10MY1967	0.00267)	(1386	GS1C	12MY1967	C.00287)	(1387	CS11	12MY1967	C.00792)
(1392	GS16	12MY1967	0.00308)	(1395	GS19	13MY1967	C.0C117)	(1398	GS22	14MY1967	C.CC911)
(1556	CS 3	3DC1967	0.00521)	(1547	MS 1	2CC1967	C.00798)	(1351	PI 2	21AP1967	C.11171)
(1399	PW 2	5MY1967	0.01360)	(1400	SB 2	6MY1967	C.CC596)	(1352	RW 2	21AP1967	C.02436)
(1353	FR 2	23AP1967	C.01055)	(1403	CA 2	10MY1967	0.01308)	(1407	SM 2	14MY1967	C.CC597)
(1419	BU 2	29MY1967	0.01831)	(1423	WA 2	25MY1967	C.00428)	(1424	RW 2	25MY1967	C.01332)

Genus *Rhoicosphenia* Grun.
Grunow, Verh. Zool.-Bot. Ges. Wien, 10:511. 1860.

Members of the genus *Rhoicosphenia* find their primary habitat in periphyton communities. Occasional specimens are taken in plankton collections from Lake Michigan, particularly in nearshore areas.

Rhoicosphenia curvata (Kütz.) Grun.

Gomphonema curvatum Kützing, Linnaea, 8:567, pl. 16, fig. 51. 1833.
Rhoicosphenia curvata (Kütz.) Grunow *ex* Rabenhorst, Fl. Europaea Alg., p. 112. 1864.

624 RCCURVAT TCT NC CF STATICNS 64

(3541	CH	1FE1881	0.00678)	146517	CH	12JA1946	C.00028)	146923	CH	22NC1946	C.CC219)
146920	CH	20DE1946	0.00062)	146522	CH	21AU1947	C.00097)	146764	EV	17JL1937	C.00806)
146747	EV	1AU1937	C.C1485)	146763	EV	23AU1937	1.56250)	146752	EV	15SE1937	C.26121)
146750	EV	24SE1937	0.00943)	146748	EV	13DC1937	C.17079)	146767	EV	27DC1937	C.01547)
146745	EV	12MR1938	0.01214)	146768	EV	16MR1938	0.C1470)	146762	EV	18MR1938	C.C2206)
146751	EV	30MR1938	0.01117)	(1272	C* 1	10SE1964	0.00821)	(1285	F 1	15SE1964	C.CC582)
(1341	A 3	19AP1967	0.00108)	(1342	A 4	19AP1967	0.00180)	(1343	A 6	19AP1967	C.CCC65)
(1504	A 3	28AU1967	0.00247)	(1536	E 2	24SE1967	0.00273)	(1538	E 5	23SE1967	C.02210)
(1388	GS12	12MY1967	0.00603)	(1557	GS 4	3DC1967	C.00374)	(1561	CS 5	4DC1967	C.CC587)
(1567	GS15	5CC1967	C.00476)	(1569	GS17	5CC1967	C.00297)	(1575	GS20	6CC1967	C.CC387)
(1524	MI 1	2CSE1967	2.02590)	(1546	LL 1	2CC1967	C.03001)	(1520	MD 1	16SE1967	C.05658)
(1521	SM 1	18SE1967	0.0e347)	(1522	BM 1	18SE1967	C.00912)	(1523	WA 1	15SE1967	C.18450)
(1525	PW 1	20SE1967	0.08355)	(1526	MD 1	20SE1967	0.81356)	(1527	TR 1	20SE1967	C.08176)
(1528	SB 1	2CSE1967	0.23101)	(1529	KW 1	20SE1967	C.62356)	(1530	FR 1	24SE1967	C.C2000)
(1531	GM 1	25SE1967	0.10985)	(1545	WL 1	2CC1967	0.10812)	(1548	CA 1	3CC1967	C.05088)
(1549	MO 1	4CC1967	0.01370)	(1552	SM 1	6CC1967	C.CC66C)	(1550	PR 1	5CC1967	C.01239)
(1553	SG 1	6CC1967	0.01469)	(1428	MV 2	29MY1967	0.00603)	(1426	MS 2	29MY1967	C.C3150)
(1351	PI 2	21AP1967	0.00310)	(1427	LL 2	29MY1967	C.03632)	(1417	MD 2	22MY1967	C.00374)
(1350	BM 2	19AP1967	0.00524)	(1399	PW 2	5MY1967	C.00680)	(1401	MO 2	6MY1967	C.01176)
(1402	TR 2	6MY1967	0.01e24)	(1400	SB 2	6MY1967	C.07148)	(1352	RW 2	21AP1967	C.CC659)
(1354	GM 2	25AP1967	0.00173)	(1429	WL 2	29MY1967	C.01062)	(1403	CA 2	10MY1967	C.01308)
(1423	WA 2	25MY1967	0.00428)								

Rhoicosphenia curvata var. *subacuta* M. Schmidt

Rhoicosphenia curvata var. *subacuta* M. Schmidt *in*: A. Schmidt, Atlas Diat., pl. 213, figs. 6-7. 1899.

625 RCCURVVS TCT NC CF STATICNS 1

(1544 MU 1 2CC1967 0.00238)

Genus *Rhopalodia* O. Müll.
O. Müller, Bot. Jahrb., 22:55. 1895.

Members of the genus *Rhopalodia* are adapted to epiphytic growth on aquatic vascular plants and the coarser species of algae. Occasional specimens are noted in plankton collections from Lake Michigan, particularly those from nearshore areas.

Rhopalodia gibba (Ehr.) O. Müll.

Navicula gibba Ehrenberg, Infusionsthierchen, p. 184, pl. 13, fig. 19. 1838.
Rhopalodia gibba (Ehr.) O. Müller, Bot. Jahrb., 22:65, pl. 1, figs. 15-17. 1897.

626 RPGIBBA TOT NO OF STATIONS 5

160973	CH		1876	0.02362)	(1285	F 1		15SE1964	0.02912)	(1379	CS 3		9MY1967	0.00309)
(1331	GM 1		25SE1967	0.00845)	(1553	SG 1		4OC1967	0.00734)	(				

Rhopalodia gibba var. *ventricosa* (Kütz.) V. H.

Epithemia ventricosa Kützing, Bacill., p. 25, pl. 3, fig. 9. 1844.
Rhopalodia gibba var. *ventricosa* (Kütz.) Van Heurck, Treat. Diat., p. 296. 1896.

628 RPGIBBVV TOT NO OF STATIONS 1

(1284	E 6	17SE1964	0.00318)	(

Rhopalodia gibberula (Ehr.) O. Müll.

Eunotia gibberula Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:126, pl. 3(4), fig. 8. 1843.

627 RPGIBBAR TOT NO OF STATIONS 1

(1350	BM 2	19AP1967	0.00220)	(

Genus *Stauroneis* Ehr.
Ehrenberg, Ber. Akad. Wiss. Berlin, 1843:45. 1843.

Most members of the genus *Stauroneis* find their primary habitat in benthic communities. Certain species that are abundant in epipelic populations are rather commonly found in plankton collections from Lake Michigan but always in very low numbers.

Stauroneis acutiuscula Per. and Hérib.

Stauroneis acutiuscula Peragallo and Héribaud *in*: Héribaud, Diat. Auvergne, p. 78, pl. 3, fig. 20. 1893.

629 SAACUTI TOT NO OF STATIONS 5

(1565	GS13		5OC1967	0.01521)	(1569	GS17		9OC1967	0.00149)	(1546	LL 1		2OC1967	0.00500)
(1530	FR 1		24SE1967	0.01000)	(1545	MI 1		2OC1967	0.02027)	(				

Stauroneis anceps Ehr.

Stauroneis anceps Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:422, pl. 2(1), fig. 18. 1843.

630 SAANCEPS TOT NO OF STATIONS 6

146747	EV		18AU1937	0.00743)	146750	EV		24SE1937	0.00471)	(1352	CS16		12MY1967	0.00308)
(1530	FR 1		24SE1967	0.01000)	(1350	BM 2		19AP1967	0.00220)	(1402	TR 2		6MY1967	0.00541)

Stauroneis anceps fo. *gracilis* Rabh.

Stauroneis anceps fo. *gracilis* Rabenhorst, Fl. Europaea Alg., sect. 1, p. 247. 1864.

631 SAANCEVH TOT NO OF STATIONS 1

(1406	GB 2	13MY1967	0.00270)	(

Stauroneis anceps var. *siberica* Grun.

Stauroneis anceps var. *siberica* Grunow *in*: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):48, pl. 3, fig. 65. 1880.

632 SAANCEVS TCT NC OF STATIONS 5

146922	GH	21AU1967	0.00048	)	146764	EV	17JL1937	0.01612	)	146743	EV	23AU1937	0.02029	)
(1575	GS28	6OC1967	0.00129	)	(1405	ES 2	12MY1967	0.00645	)	(				

Stauroneis dilatata Ehr.

Stauroneis dilatata Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:134, pl. 1(2), fig. 12. 1843.

634 SADILATA TCT NC OF STATIONS 4

146764	EV	17JL1937	0.03222	)	146757	EV	25JL1937	0.02889	)	146747	EV	1AU1937	0.00495	)
146763	EV	23AU1937	0.02029	)	(									

Stauroneis nobilis var. *baconiana* (Stodd.) Reim.

Stauroneis baconiana Stoddard, Proc. Boston Soc. Nat. Hist., 7:26. 1859.
Stauroneis nobilis var. *baconiana* (Stodd.) Reimer, Proc. Acad. Nat. Sci. Philadelphia, 113:204, pl. 2, fig. 1. 1961.

633 SANOBIVB TCT NC OF STATIONS 1

(1380	GS12	12MY1967	0.00603	)	(									

Stauroneis phoenicenteron (Nitz.) Ehr.

Bacillaria phoenicenteron Nitzsch, (pro parte), Neue Schrift. Naturf. Ges. Halle, 3(1):92, pl. 4, figs. 12, 14 (non figs. 1-11, 13, 15-22). 1817.
Stauroneis phoenicenteron (Nitz.) Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:387, pl. 2(5), fig. 1. 1843.

635 SAPHCENI TCT NC OF STATIONS 1

(1390	GS14	12MY1967	0.00587	)	(									

Stauroneis phoenicenteron var. *brevis* Dippel

Stauroneis phoenicenteron var. *brevis* Dippel, Diat. Rhein-Mainebene, p. 82, fig. 176. 1904.

637 SASPECCA TCT NC OF STATIONS 1

(1404	PO 2	10MY1967	0.01270	)	(									

Stauroneis smithii Grun.

Stauroneis smithii Grunow, Verh. Zool.-Bot. Ges. Wien, 10:564, pl. 6, fig. 16. 1860.

636 SASMITHI TCT NC OF STATIONS 6

(1389	GS13	12MY1967	0.00258	)	(1565	GS13	5OC1967	0.02028	)	(1549	PO 1	4OC1967	0.01370	)
(1550	HR 1	5OC1967	0.01239	)	(1350	BH 2	19AP1967	0.00220	)	(1404	PO 2	10MY1967	0.01270	)

Genus *Stephanodiscus* Ehr.
Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:80. 1845.

Stephanodiscus alpinus Hust. *ex* Huber-Pestalozzi

Stephanodiscus alpinus Hust. *ex* Huber-Pestalozzi, Die Binnengewässer, Band 16, Teil 2, Hälfte 2, p. 412, pl. 122, fig. 508. 1942.

Cells circular in valve view and rectangular in girdle view. Vegetative cells always occur singly. Valves of specimens from Lake Michigan 7-33μ in diameter with slightly concave centers. Radial striae usually in biseriate fascicles near the margin, becoming single near the center of the valve, more rarely single throughout or becoming triseriate near the margins. Puncta in radial striae small but distinct, 18-22 in 10μ. Fascicles are rather widely separated by conspicuous, thickened ribs. The marginal spines occur at the ends of the ribs, between the fascicles. Usually a spine is present at the end of each rib but occasionally, especially in the small individuals, spines may be irregular or lacking. Fascicles and spines 7-10 in 10μ at the margin of the valves.

Although this species has only recently been reported from Lake Michigan (Stoermer 1967), specimens included in our concept of the taxon are present both in modern samples and in samples dating back to 1876. Previous reports probably refer this species to *Stephanodiscus astraea* (Ehr.) Grun. or *S. astraea* var. *minutula* (Kütz.) Grun. Huber-Pestalozzi (1942) reports this entity is abundant in the hypolimnion of alpine lakes.

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6C973	CH	1876	0.45598	3540	CH	11MY1875	0.29819	3541	CH	1FE1881	C.7C425
3507	CH	19FE1881	0.30564	46510	CH	CC1965	C.00109	46921	CH	23NC1965	C.00323
46917	CH	12JA1946	0.00582	46515	CH	20FE1946	0.03414	46914	CH	19AP1946	C.23064
46924	CH	10MY1946	0.01058	46523	CH	22ND1946	0.00437	46920	CH	20DE1946	C.CC647
46905	CH	JA1947	0.00490	46505	CH	MR1947	C.59196	46912	CH	AP1947	C.C2449
46916	CH	MY1947	0.00611	46506	CH	MY1947	C.01726	46919	CH	5JN1947	C.CC910
46907	CH	JL1947	0.32052	46522	CH	21AU1947	C.C4362	46771	EV	11JN1937	C.C1902
46743	EV	20JN1937	0.01285	46764	EV	17JL1937	0.01612	46757	EV	25JL1937	C.CC481
46763	EV	23AU1937	0.02029	46756	EV	27AP1938	C.C0336	46755	EV	15MY1938	C.CC675
1224	B 4	18MY1964	0.00392	1228	D 2	14MY1964	0.CC389	1229	C 5	14MY1964	C.C3806
1231	E 3	16MY1964	0.03665	1232	E 5	16MY1964	C.C4174	1233	B 3	5JN2964	C.00714
1234	B 3	18JN1964	C.C1406	1235	C 7	16JN1964	0.00282	1236	C* 1	8JN1964	C.CC525
1237	C* 2	8JN1964	0.01031	1238	D 3	11JN1964	C.C1200	1239	C 4	11JN1964	C.CC348
1240	D 6	10JN1964	0.02148	1241	E 2	13JN1964	C.06653	1242	E 3	13JN1964	C.CC450
1243	E 6	13JN1964	C.01044	1244	F 1	11JN1964	C.02741	1245	F 2	11JN1964	C.12102
1246	F 3	11JN1964	0.06574	1247	B 3	14JL1964	C.00854	1440	B 6	11JL1964	C.C7370
1441	B 6	24JL1964	C.C2423	1250	C 6	10JL1964	C.C1233	1252	C* 1	16JL1964	C.C1116
1253	C* 2	16JL1964	0.06162	1254	D 2	15JL1964	C.20686	1255	D 5	15JL1964	C.3C543
1256	E 2	14JL1964	C.C6595	1257	E 3	14JL1964	C.C7417	1258	F 1	6JL1964	C.C5191
1259	F 2	6JL1964	0.06817	1260	F 3	6JL1964	C.01719	1261	B 3	2AL1964	C.CC785
1262	B 3	17AL1964	C.01050	1442	F 6	2AL1964	C.00341	1263	C 7	15AL1964	C.CC40C
1264	C* 1	10AL1964	0.00575	1266	D 3	18AU1964	C.C4911	1268	E 2	15AL1964	C.17234
1269	E 3	15AL1964	0.17267	1270	F 1	10AU1964	C.01634	1271	C 7	22SE1964	C.C1306
1272	C* 1	10SE1964	0.CC41C	1275	D 2	17SE1964	C.C0645	1278	D 6	18SE1964	C.CC769
1279	E 1	16SE1964	0.01571	1280	E 2	16SE1964	C.00681	1281	E 3	16SE1964	C.CC392
1283	E 5	16SE1964	0.C1226	1284	E 6	17SE1964	C.C0635	1285	F 1	15SE1964	C.C2912
1286	F 2	15SE1964	0.02189	1287	F 3	15SE1964	C.03002	1445	B 6	14DC1964	C.C1305
1289	C 7	14CC1964	C.CC879	1292	D 1	15CC1964	C.00373	1293	D 2	15CC1964	C.CC472
1294	D 3	15CC1964	0.CC659	1296	D 5	14CC1964	C.01574	1298	E 1	12DC1964	C.CC539
1299	E 2	12CC1964	0.00943	1300	E 3	13DC1964	C.C4654	1301	E 4	13DC1964	C.CC883
1302	E 5	13DC1964	0.08503	1303	E 6	13CC1964	C.00560	1304	F 1	11DC1964	C.CC741
1305	F 2	11CC1964	C.CC345	1306	F 3	11DC1964	C.00554	1308	C 7	6NC1964	C.C1217
1309	C* 1	10ND1964	0.00161	1310	C* 2	10NC1964	C.00227	1312	D 2	8NC1964	C.CC310
1313	D 3	9NC1964	C.C2896	1314	D 4	9ND1964	0.00861	1315	D 5	9NC1964	C.CC91C
1316	D 6	9NC1964	0.CC378	1317	E 1	6NC1964	C.00766	1318	E 2	7NC1964	C.01332
1319	E 3	7NC1964	C.0C785	1320	E 4	7NC1964	C.01861	1321	E 5	7NC1964	C.CC558
1322	E 6	7NC1964	0.CC333	1323	F 1	6NC1964	C.C0279	1325	F 3	6NC1964	C.CC504
1326	C 3	27JA1967	C.0C578	1337	C 3	2MR1967	C.C0588	1338	C 3	28MR1967	C.C1190
1339	C 5	26MR1967	0.C530C	1340	C 7	28MR1967	0.00509	1341	A 3	19AP1967	C.CC759
1342	A 6	19AP1967	C.0C625	1345	C 5	25AP1967	C.00585	1346	C 7	21AP1967	C.CC401
1347	E 2	23AP1967	0.00163	1348	E 5	23AP1967	C.01234	1369	A 4	4MY1967	C.CC745
1370	A 6	3MY1967	C.C1611	1371	C 3	4MY1967	C.00462	1372	C 5	5MY1967	C.02837
1374	E 2	7MY1967	0.0C598	1375	E 3	7MY1967	C.01684	1376	E 5	6MY1967	C.CC843
1409	A 4	23MY1967	0.00893	1410	A 6	24MY1967	C.01128	1411	C 3	31MY1967	C.02051
1414	E 2	28MY1967	0.00336	1416	E 5	28MY1967	C.00656	1432	A 4	13JN1967	C.0C255
1433	C 3	17JN1967	0.0C646	1434	C 5	17JN1967	C.01196	1435	C 7	13JN1967	C.C221C
1436	E 2	15JN1967	0.00724	1438	E 5	14JN1967	0.CC363	1446	A 3	11JL1967	C.CC245
1449	C 3	16JL1967	C.CC784	1450	C 5	16JL1967	0.00571	1451	C 7	16JL1967	C.0C197
1452	E 2	14JL1967	0.00639	1453	E 3	15JL1967	C.C1C11	1454	E 5	15JL1967	C.C1200
1504	A 3	28AL1967	0.0C988	1509	C 5	25SE1967	C.01009	1511	E 2	15E1967	C.C1842
1512	E 3	15E1967	0.01571	1532	A 3	18SE1967	0.00986	1533	A 4	19SE1967	C.0C484
1534	A 6	19SE1967	C.CC310	1535	C 7	20SE1967	0.CC322	1536	E 2	24SE1967	C.C1636
1537	E 3	24SE1967	0.08626	1538	E 5	23SE1967	C.02762	1539	C 3	4DC1967	C.C1510
1540	C 5	4CC1967	0.0C993	1541	E 2	11DC1967	C.C479C	1542	E 3	11CC1967	C.32038
1543	E 5	10CC1967	0.01437	1377	GS 1	9MY1967	0.01583	1378	GS 2	9MY1967	C.CC841
1379	GS 3	9MY1967	0.36828	1380	GS 4	9MY1967	C.05213	1381	GS 5	10MY1967	C.C2101
1382	GS 6	10MY1967	0.06939	1383	GS 7	10MY1967	C.C9356	1384	GS 8	10MY1967	C.66550
1385	GS 9	10MY1967	0.0259C	1386	GS10	12MY1967	C.27866	1387	GS11	12MY1967	C.79214
1388	GS12	12MY1967	0.35596	1389	GS13	12MY1967	C.08767	1390	GS14	12MY1967	C.39342
1391	GS15	12MY1967	C.42140	1392	GS16	12MY1967	0.72118	1393	GS17	13MY1967	C.54789
1394	GS18	13MY1967	1.32452	1395	GS19	13MY1967	0.18202	1396	GS20	13MY1967	C.05179
1397	GS21	13MY1967	0.16744	1398	GS22	14MY1967	C.12448	1554	GS 1	3CC1967	C.C1423

(1555	GS 2	30C1967	0.01059)	(1556	GS 3	30C1967	0.30766)	(1557	GS 4	30C1967	C.23169)
(1558	GS 5	40C1967	0.05549)	(1559	GS 7	40C1967	C.01399)	(1560	GS 8	4CC1967	C.C1417)
(1561	GS 9	40C1967	0.00587)	(1562	GS10	50C1967	C.00740)	(1563	GS11	50C1967	C.03040)
(1564	GS12	50C1967	0.00656)	(1565	GS13	50C1967	C.01014)	(1566	GS14	50C1967	C.C3302)
(1567	GS15	50C1967	0.31754)	(1568	GS16	50C1967	C.12698)	(1569	GS17	50C1967	C.55594)
(1570	GS18	50C1967	0.87267)	(1571	GS19	60C1967	C.04507)	(1572	GS20	60C1967	C.C1622)
(1573	GS21	60C1967	0.22622)	(1574	GS22	60C1967	C.04027)	(1575	GS28	60C1967	C.25804)
(1544	MU 1	20C1967	C.22160)	(1547	MS 1	20C1967	C.27944)	(1524	PI 1	20SE1967	C.32837)
(1546	LU 1	20C1967	0.88031)	(1520	MD 1	18SE1967	C.75440)	(1521	SH 1	18SE1967	C.3CC02)
(1523	MA 1	19SE1967	0.C3695)	(1525	PW 1	20SE1967	C.01393)	(1526	MO 1	20SE1967	C.15930)
(1527	TR 1	20SE1967	0.18234)	(1528	SB 1	20SE1967	C.07219)	(1529	MW 1	20SE1967	C.C5996)
(1530	FR 1	24SE1967	C.01000)	(1531	GM 1	25SE1967	C.29586)	(1545	WL 1	20C1967	1.94608)
(1548	CA 1	30C1967	0.07633)	(1549	MG 1	40C1967	C.09593)	(1551	ES 1	50C1967	C.67C98)
(1552	SM 1	60C1967	0.1e507)	(1550	MR 1	50C1967	C.73101)	(1553	SG 1	90C1967	C.49941)
(1428	MU 2	29MY1967	0.10546)	(1426	MS 2	29MY1967	C.03150)	(1351	PI 2	21AP1967	C.19550)
(1427	LU 2	29MY1967	0.50847)	(1417	MD 2	22MY1967	C.59818)	(1418	SH 2	22MY1967	C.24883)
(1350	BR 2	19AP1967	C.12995)	(1425	RA 2	25MY1967	C.39784)	(1359	PW 2	5MY1967	C.5E487)
(1401	MO 2	6MY1967	C.84078)	(1402	TR 2	6MY1967	1.03964)	(1400	SB 2	6MY1967	C.8518C)
(1352	MW 2	21AP1967	0.72153)	(1353	FR 2	23AP1967	C.17532)	(1354	GM 2	25AP1967	C.14499)
(1429	WL 2	29MY1967	C.24727)	(1403	CA 2	10MY1967	1.76540)	(1404	MG 2	10MY1967	C.1C103)
(1405	ES 2	12MY1967	0.40635)	(1407	SM 2	14MY1967	C.57921)	(1349	CI 2	19AP1967	C.3C175)
(1406	GB 2	13MY1967	0.04044)	(1419	BL 2	23MY1967	C.58587)	(1420	IH 2	23MY1967	C.18127)
(1421	CH 2	23MY1967	0.74601)	(1422	GA 2	23MY1967	C.77658)	(1423	WA 2	25MY1967	1.52015)
(1424	KN 2	25MY1967	0.83933)	(							

Stephanodiscus astraea (Ehr.) Grun. *in* Cl. and Grun.

Discoplea ? astraea Ehrenberg, Ber. Akad. Wiss. Berlin, 1844:267. 1844.
Cyclotella astraea (Ehr.) Kützing, Sp. Alg., p. 19. 1849.
Stephanodiscus astraea (Ehr.) Grunow, *in* Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):114. 1880.

Cells circular in valve view and rectangular in girdle view. Vegetative cells always occur singly. Radial striae in biseriate fascicles near the margin of the valve, becoming uniseriate and disorganized near the center of the valve which is markedly concave. Puncta in the radial striae distinct, 16-19 in 10μ. The fascicles are closely packed with only a narrow hyaline space separating them. The spines in this species are submarginal and irregularly arranged, usually between every 2-4 fascicles. Fascicles 6-8 in 10μ at the margins of the valves. In this taxon the fine, irregularly punctate ornamentation of the valve mantle is visible as a margin which is separated from the ornamentation of the valve surface by a narrow hyaline space. The spines arise from the inner border of the apparent margin.

Despite the fact that this is the most widely reported species of the genus, numerous problems of both circumscription and formal nomenclature are attached to it. I have not had the opportunity to observe authentic material of *Discoplea astraea*. Material annotated by Grunow, author of the combination, upon whose illustrations and verified specimens most modern treatments of this taxon are based is available in the United States and is the basis of our concept of the taxon.

Many of the authors that have treated the Lake Michigan plankton have either failed to distinguish this species from *S. niagarae* or have considered the two taxa to be synonymous. Cleve-Euler (1951) has made a variety, *S. astraea* var. *niagarae*, and has pointed out the close morphologic similarity of the two forms. Although this contention cannot be dismissed lightly, substantial differences do exist in the morphology of apparently discrete populations from the upper Great Lakes region and we chose to take the taxonomically conservative position that the two taxa, as circumscribed, represent distinct genetic entities unless it can be shown experimentally that the range of variation observed can be accommodated by a single genome.

The formal nomenclature of this species has been beclouded by the great number of "varieties," some with strikingly different morphology, that have been attached to it. It is our contention that a number of these entities should be treated as separate entities as their resemblance to the typical species is, at best, superficial.

Hendy (1964) has made a new combination, *S. rotula* (Kütz.) Hendy, citing *S. astraea* (Ehr. *ex* Kütz.) Grun. *in* Cleve and Grunow as a synonym. Hendy's reasoning on this is obscure in that Kützing (1849) clearly indicates that *Cyclotella rotula* Kützing (1844) is a later synonym of *Discoplea ? astraea* Ehrenberg (1844) and further makes a new combination *Cyclotella astraea* (Ehr.) Kütz. based on that epithet. In order to make his intentions fully clear he then proceeds to make a new, and by current rules thoroughly illegal, combination *C. rotula* (Ehr.) Kütz. based on *Discoplea ? rotula* Ehr. (1844). Although Kützing's name juggling seems to have confused Hendy, such was not the case with Grunow as he clearly refers the specific epithet to Ehrenberg's type along with Kützing's synonym.

This species, despite the relatively large number of reports referring to it, is rare in the plankton of the major portion of the Lake Michigan basin. It occurs in considerable quantity in estuaries and inshore waters that are appreciably eutrophied. It is also one of the most common members of the genus in smaller lakes throughout the state.

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(1232	E 5	16MY1964	0.00174)	(1236	C* 1	8JN1964	0.00875)	(1237	C* 2	8JN1964	0.00773)
(1238	D 3	11JN1964	0.00200)	(1241	E 2	13JN1964	0.00296)	(1264	C* 1	10AU1964	0.00193)
(1266	D 3	18AU1964	0.00351)	(1274	E 1	17SE1964	0.00469)	(1309	C* 1	10NC1964	0.00322)
(1337	C 3	2MR1967	0.00294)	(1338	C 2	28MR1967	0.00132)	(1341	A 3	19AP1967	0.00108)
(1342	A 4	19AP1967	0.00180)	(1411	C 2	31MY1967	0.00821)	(1416	E 5	28MY1967	0.00342)
(1432	A 4	13JN1967	0.00511)	(1437	E 3	15JN1967	0.00269)	(1380	GS 4	9MY1967	0.00168)
(1384	GS 8	10MY1967	0.00185)	(1389	GS13	12MY1967	0.00258)	(1566	GS14	5OC1967	0.00183)
(1544	MU 1	2OC1967	0.04766)	(1520	MO 1	18SE1967	0.39606)	(1526	MO 1	20SE1967	0.00569)
(1531	GM 1	25SE1967	0.01691)	(1428	MU 2	29MY1967	0.01808)	(1417	MO 2	22MY1967	0.77763)
(1418	SM 2	22MY1967	0.01555)	(1350	BM 2	19AP1967	0.00220)	(1394	GM 2	25AP1967	0.01381)
(1429	WL 2	29MY1967	0.04247)	(1406	CB 2	13MY1967	0.11592)	(1419	BU 2	23MY1967	0.07323)

Stephanodiscus binderanus (Kütz.) Krieger

Melosira binderana Kütz., Bacill., p. 55, pl. 2, fig. 1. 1844.
Stephanodiscus binderanus (Kütz.) Krieger, Pflanzenforsch. 10:21. 1927.

Cells circular in valve view and rectangular in girdle view, elongate in the pervalvar axis. Vegetative cells always occur in colonies, attached at the valve surface. Valves of specimens from Lake Michigan 8-22μ in diameter, valve surfaces planar. The radial striae are not united into well defined fascicles. Ornamentation of the valve surface is very irregular in this species. In some specimens the poroids are arranged in definite rows and a secondary level of radial ribs is visible, in others the ornamentation of the valve is only partially developed and its order is obscured. A border of small, regularly arranged, submarginal spines is present. The slime pores are not directly below the spines on the valve mantle in this species as they are in most other members of the genus. Because of the shallow valve mantle the slime pores, which are irregularly arranged, are highly visible and their thickened bases may be confused with spines unless care is taken. Puncta in the radial striae about 20-24 in 10μ. Submarginal spines 8-10 in 10μ, usually 3-5 spines occur between each slime pore.

As Krieger (1927) points out the frustular structure and the sequence of formation of elements of the frustule in this species are essentially similar to other species of *Stephanodiscus* and much different from *Melosira* (Reimann 1960). Its superficial resemblance to the latter genus is only based on its consistent colonial growth habit. A number of the smaller species of *Stephanodiscus* show a greater or lesser tendency to adopt the colonial habit. Great care must be taken if these species are to be distinguished. It is to be emphasized that there is no certain way to distinguish them in living material.

This species is apparently a recent introduction into the flora of Lake Michigan. We have not been able to find records of its occurrence prior to 1938. It is now present in polluted inshore areas throughout the lake and substantial spring blooms have been noted in all parts of the lake in the past few years. Its introduction has caused substantial difficulties for filtration plants utilizing water from that lake in that its filamentous growth habit makes it an excellent filter clogger.

331 PERINGER ICT NO OF STATIONS 224

446921	CH	23NO1945	0.00065	446514	CH	19AP1946	0.48584	446924	CH	10MY1946	0.CC141		
446912	CH	AP1947	0.01150	446516	CH	4MY1947	0.00170	446906	CH	MY1947	0.00133		
44675L	EV	30MR1928	0.06699	446772	EV	18AP1938	0.01419	446756	EV	27AP1938	0.C6804		
446761	EV	27MY1938	0.00545	1225	C 6	15MY1964	0.09408	1226	C 7	16MY1964	0.35769		
1227	C* 2	13MY1964	0.0C329	1228	D 2	14MY1964	0.01557	1229	D 1	14MY1964	0.CC634		
1230	2	16MY1964	0.27263	1231	E 3	16MY1964	0.07093	1232	E 5	16MY1964	1.21743		
1233	B 3	5JN2964	0.04287	1234	B 3	18JN1964	0.03936	1235	C 7	16JN1964	0.09038		
1239	B 6	5JN1964	0.18781	1236	C* 1	8JN1964	0.01925	1237	C* 2	8JN1964	0.04383		
1238	D 3	11JN1964	0.02800	1239	D 4	11JN1964	0.05570	1240	D 6	10JN1964	0.01994		
1241	E 2	13JN1964	0.07393	1242	E 3	13JN1964	0.00150	1243	E 4	13JN1964	0.03758		
1244	F 1	11JN1964	0.00548	1245	F 2	11JN1964	0.01383	1246	F 3	11JN1964	0.01195		
1440	B 6	11JL1964	0.00369	1441	B 6	24JL1964	0.00881	1250	C 6	10JL1964	0.01644		
1251	C 7	16JL1964	0.00579	1252	C* 1	16JL1964	0.00558	1253	C* 2	16JL1964	0.00228		
1254	D 2	15JL1964	0.01724	1255	D 5	15JL1964	0.00513	1256	E 2	14JL1964	0.02228		
1258	F 1	6JL1964	0.00236	1259	F 2	6JL1964	0.00930	1260	F 3	6JL1964	0.00382		
1442	B 6	2AL1964	0.00682	1264	C* 1	10AU1964	0.CC193	1265	C* 2	10AL1964	0.CC224		
1266	D 3	18AU1964	0.CC351	1267	D 6	18AL1964	0.00649	1268	E 2	15AU1964	0.C2462		
1270	F 1	10AU1964	0.00272	1273	C* 2	10SE1964	0.C0538	1274	D 1	17SE1964	0.04223		
1275	D 2	17SE1964	0.C258C	1278	D 6	18SE1964	0.00384	1279	E 1	16SE1964	0.13743		
1280	E 2	16SE1964	0.CC681	1284	E 6	17SE1964	0.04448	1285	F 1	15SE1964	0.CC582		
1288	B 3	15OC1964	0.00218	1289	C 7	14CC1964	0.00440	1290	C* 1	16OC1964	0.C1137		
1291	C* 2	14OC1964	0.CC734	1293	D 2	15CC1964	0.00472	1294	D 3	15OC1964	0.CC330		
1297	D 6	14CC1964	0.CC190	1303	E 6	13CC1964	0.C0560	1308	C 7	6NC1964	0.CC304		
1309	C* 1	10NO1964	0.00322	1310	C* 2	10NO1964	0.C0227	1311	D 1	8NO1964	0.CC774		
1312	D 2	8NO1964	0.04656	1313	D 3	9NO1964	0.00386	1314	D 4	9NO1964	0.0C574		
1316	D 6	9NO1964	0.0C378	1317	E 1	6NO1964	0.00574	1320	E 4	7NC1964	0.00414		
1321	E 5	7NO1964	0.00319	1325	F 3	6NO1964	0.C0252	1336	C 3	27JA1967	0.C1733		
1337	C 3	2MR1967	4.8869C	1338	C 3	28MR1967	7.40466	1339	C 5	28MR1967	0.29307		
1340	C 7	28MR1967	8.29704	1341	A 3	19AP1967	1.89840	1342	A 4	19AP1967	0.19490		
1343	A 6	19AP1967	42.65C01	1344	C 3	25AP1967	0.63694	1345	C 5	25AP1967	0.24755		
1346	C 7	21AP1967	1.58893	1347	E 2	23AP1967	1.93480	1348	E 5	23AP1967	4.89376		
1368	A 3	4MY1967	1.64939	1369	A 4	4MY1967	0.02236	1370	A 6	3MY1967	2.41685		
1371	C 3	4MY1967	0.03001	1372	C 5	5MY1967	0.00709	1373	C 7	5MY1967	0.12836		
1374	E 2	7MY1967	0.62762	1375	E 3	7MY1967	0.10106	1376	E 5	6MY1967	2.55790		
1378	A 3	31MY1967	0.03130	1410	A A	24MY1967	0.00944	1411	C 3	31MY1967	0.CC410		
1412	C 5	31MY1967	0.00842	1413	C 7	25MY1967	0.04422	1414	E 2	28MY1967	0.C1C08		
1415	E 3	28MY1967	0.00450	1416	E 5	28MY1967	2.09058	1431	A 3	12JN1967	0.C1030		
1432	A 4	13JN1967	0.CC766	1433	C 3	17JN1967	0.05167	1434	C 5	17JN1967	0.0C299		
1435	C 7	13JN1967	0.22101	1436	E 2	15JN1967	0.01809	1437	E 3	15JN1967	0.CC269		
1438	E 5	14JN1967	0.55919	1447	A 4	11JL1967	0.00234	1448	A 6	10JL1967	0.CC354		
1449	C 3	10JL1967	0.65548	1450	C 5	10JL1967	0.00381	1451	C 7	10JL1967	0.34447		
1452	E 2	14JL1967	0.03832	1453	E 3	15JL1967	0.00758	1511	E 2	15E1967	0.01535		
1513	E 5	31AU1967	0.00507	1532	A 3	18SE1967	0.00657	1533	A 4	19SE1967	0.0C464		
1536	B 2	24SE1967	0.0C273	1537	E 3	24SE1967	0.00431	1538	E 5	23SE1967	0.CC552		
1540	C 5	4OC1967	0.00993	1541	E 2	11CC1967	0.C1C64	1542	E 3	11OC1967	0.CC509		
1377	GS 1	9MY1967	0.00792	1378	GS 2	9MY1967	0.23969	1380	GS 4	9MY1967	1.7656C		
1381	GS 5	10MY1967	1.0C176	1382	GS 6	10MY1967	1.36001	1383	GS 7	10MY1967	4.11677		
1384	GS 8	10MY1967	3.62325	1385	GS 9	10MY1967	1.23614	1386	GS10	12MY1967	2.41310		
1387	GS11	12MY1967	1.52487	1388	GS12	12MY1967	0.42232	1389	GS13	12MY1967	1.8C491		
1390	GS14	12MY1967	1.64416	1391	GS15	12MY1967	4.02241	1392	GS16	12MY1967	10.13961		
1393	GS17	13MY1967	4.79399	1394	GS18	13MY1967	5.65934	1395	GS19	13MY1967	45.62321		
1396	GS20	13MY1967	15.58951	1397	GS21	13MY1967	54.71146	1398	GS22	14MY1967	0.17306		
1554	GS 1	3CC1967	0.00356	1555	GS 2	3CC1967	0.00353	1557	GS 4	3OC1967	0.01495		
1558	GS 5	4CC1967	0.01586	1560	GS 8	4OC1967	0.02361	1561	GS 9	4OC1967	0.02935		
1562	GS10	5OC1967	0.0C74C	1563	GS11	5CC1967	0.01871	1564	GS12	5OC1967	0.14484		
1565	GS13	5CC1967	0.04056	1566	GS14	5OC1967	0.23298	1567	GS15	5CC1967	0.01111		
1568	GS16	5CC1967	0.31457	1569	GS17	5CC1967	0.01338	1571	GS19	6OC1967	0.32782		
1572	GS20	6OC1967	0.34700	1573	GS21	6OC1967	1.80305	1574	GS22	6OC1967	0.00575		
1575	GS23	6CC1967	0.07225	1544	PU 1	20C1967	0.00715	1547	PS 1	20C1967	0.C5589		
1524	PI 1	2CSE1967	0.15324	1546	LU 1	20C1967	6.00210	1520	PO 1	18SE1967	0.C3300		
1521	SM 1	18SE1967	0.18463	1522	BM 1	18SE1967	0.25346	1523	PA 1	19SE1967	1.91802		
1525	PW 1	20SE1967	0.41777	1526	MO 1	20SE1967	9.36804	1527	TR 1	20SE1967	1.50943		
1528	SB 1	20SE1967	1.15507	1529	KN 1	20SE1967	0.07195	1530	PR 1	24SE1967	0.38004		
1531	GN 1	25SE1967	0.10144	1545	WL 1	20C1967	0.21623	1549	PC 1	4DC1967	0.02741		

(1551	ES 1	5DC1967	C.17573)	(1552	SH 1	4DC1967	C.61406)	(1550	MR 1	5DC1967	C.45560)			
(1553	SG 1	6DC1967	1.17509)	(1428	MU 2	29MY1967	2.02477)	(1426	PS 2	29MY1967	C.19948)			
(1351	MI 2	21AP1967	24.32893)	(1427	LU 2	29MY1967	C.18160)	(1417	MO 2	22MY1967	32.08221)			
(1418	SM 2	22MY1967	0.20218)	(1350	BM 2	19AP1967	3.91181)	(1425	MA 2	25MY1967	6.36548)			
(1399	PM 2	5MY1967	3.37323)	(1401	MO 2	6MY1967	10.81844)	(1402	TR 2	6MY1967	8.92354)			
(1400	SB 2	6MY1967	1.23898)	(1352	KW 2	21AP1967	10.85724)	(1353	FR 2	23AP1967	14.17721)			
(1354	GM 2	25AP1967	56.72563)	(1429	WL 2	29MY1967	6.96465)	(1403	CA 2	10MY1967	1.42540)			
(1404	MO 2	10MY1967	1.06707)	(1405	ES 2	12MY1967	5.67595)	(1407	SM 2	14MY1967	18.82127)			
(1349	CI 2	15AP1967	29.08253)	(1406	GB 2	13MY1967	0.00809)	(1419	BU 2	23MY1967	C.85711)			
(1420	IM 2	23MY1967	0.95166)	(1421	CH 2	23MY1967	0.45108)	(1422	CA 2	23MY1967	C.60287)			
(1423	WA 2	25MY1967	9.59192)	(1424	KA 2	25MY1967	4.90274)	(						

Stephanodiscus hantzschii Grun.

Stephanodiscus hantzschii Grunow *in* Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):115. 1880.
Stephanodiscus hantzschianus Grun. *in* Van Heurck, Syn. Diat. Belgique, p. 216, pl. 95, fig. 10. 1885.

Cells circular in valve view and square in girdle view. Vegetative cells may occur singly or in colonies of up to 100 cells. Valves of specimens from Lake Michigan 8–22μ in diameter with very slightly concave centers. Radial striae in biseriate to quadriseriate fascicles at the valve margins, becoming uniseriate near the center of the valve. Puncta in the radial striae fine, somewhat difficult to resolve, 22-24 in 10μ. Fascicles widely separated by a hyaline area that is not apparently thickened. The marginal spines occur regularly at the ends of each hyaline ray and arise from noticeably thickened bases. Placement of the spines is very regular in this taxon and they are irregular or missing only on grossly abnormal specimens. Fascicles and spines 8-11 in 10μ at the margins of the valves.

Our concept of this taxon is based on specimens examined by Grunow in the Van Heurck exsiccatae (Types du Synopsis no. 482). It closely resembles several of the other smaller species of *Stephanodiscus* and adequate optical equipment, used with care, is necessary to distinguish it from these species. On the basis of our observations it is rare in the offshore flora and only becomes abundant in harbors and eutrophied inshore areas.

443 SYNONYMS TOT NO OF STATIONS 199

(3540	CH	11MY1870	0.19569)	(3507	CH	19FE1881	0.06792)	146910	CH	0C1945	C.CC109)			
146908	CH	DE1945	0.01007)	146914	CH	19AP1946	0.55524)	146924	CH	10MY1946	C.22927)			
146923	CH	22ND1946	0.01967)	146920	CH	20DE1946	0.00431)	146905	CH	JA1947	C.CC613)			
146909	CH	MR1947	0.01366)	146912	CH	AP1947	C.08049)	146916	CH	4MY1947	C.CC577)			
146906	CH	MY1947	0.08628)	146519	CH	5JN1947	C.02124)	146907	CH	JL1947	C.CC394)			
146922	CH	21AU1947	0.00485)	146772	EV	18AP1938	0.00710)	146756	EV	27AP1938	0.CC336)			
146761	EV	27MY1938	0.0C273)	(1224	B 4	18MY1964	0.00196)	(1225	C 6	15MY1964	C.C3136)			
(1226	C 7	16MY1964	0.05327)	(1227	C* 2	13MY1964	0.00110)	(1228	D 2	14MY1964	0.01752)			
(1229	D 5	14MY1964	0.02749)	(123C	E 2	16MY1964	0.07408)	(1231	E 3	16MY1964	C.C3665)			
(1232	E 5	16MY1964	0.06087)	(1233	B 3	5JN2964	0.02620)	(1234	B 3	18JN1964	0.C2530)			
(1235	C 7	16JN1964	0.C3954)	(1439	B 6	5JN1964	C.10589)	(1236	C* 1	8JN1964	C.C3151)			
(1237	C* 2	8JN1964	0.04383)	(1238	D 3	11JN1964	0.01600)	(1239	D 4	11JN1964	C.CC116)			
(1240	D 6	10JN1964	0.05829)	(1241	E 2	13JN1964	C.15081)	(1243	E 6	13JN1964	C.C167C)			
(1244	F 1	11JN1964	0.03399)	(1245	F 2	11JN1964	0.10027)	(1246	F 3	11JN1964	C.C2988)			
(1440	B 6	11JL1964	0.01474)	(1441	B 6	24JL1964	C.01542)	(1250	C 6	10JL1964	C.15733)			
(1251	C 7	16JL1964	0.00869)	(1252	C* 1	16JL1964	0.01116)	(1253	C* 2	16JL1964	0.00685)			
(1254	D 2	15JL1964	0.01145)	(1255	D 5	15JL1964	C.C1540)	(1256	E 2	14JL1964	C.03297)			
(1257	E 3	14JL1964	0.00957)	(1258	F 1	6JL1964	0.04248)	(1259	F 2	6JL1964	0.01859)			
(1260	F 3	6JL1964	0.00764)	(1264	C* 1	10AU1964	0.01545)	(1265	C* 2	10AU1964	C.0C894)			
(1267	D 6	18AU1964	0.00216)	(1268	E 2	15AU1964	0.00821)	(1269	E 3	15AU1964	C.CC274)			
(1271	C 7	22SE1964	0.0C653)	(1272	C* 1	10SE1964	C.05336)	(1273	C* 2	10SE1964	0.01613)			
(1274	D 1	17SE1964	C.01408)	(1275	D 2	17SE1964	0.01290)	(1276	D 3	18SE1964	C.C1118)			
(1277	D 4	18SE1964	0.CC626)	(1278	D 6	18SE1964	0.00769)	(1279	E 1	16SE1964	C.C1178)			
(1281	E 3	16SE1964	0.0C392)	(1283	E 5	16SE1964	C.00613)	(1284	E 6	17SE1964	C.0C635)			
(1285	F 1	15SE1964	0.01747)	(1287	F 3	15SE1964	0.01501)	(1292	D 1	15DC1964	C.0C373)			
(1295	D 4	15DC1964	0.01185)	(1297	D 6	14DC1964	C.00571)	(1298	E 1	12DC1964	C.CC269)			
(1300	E 3	13DC1964	0.00716)	(1301	E 4	13DC1964	0.00442)	(1303	E 6	13DC1964	C.01119)			
(1304	F 1	11DC1964	C.CC247)	(1306	F 3	11DC1964	C.00277)	(1307	B 6	NO1964	0.CC361)			
(1308	C 7	6NO1964	0.00912)	(1309	C* 1	10NO1964	0.00443)	(1311	D 1	8NO1964	C.CC258)			
(1312	D 2	8NO1964	C.CC310)	(1313	D 3	9NO1964	C.00193)	(1315	D 5	9NO1964	0.00910)			
(1317	E 1	6NO1964	0.00383)	(1318	E 2	7NO1964	0.00190)	(1319	E 3	7NO1964	0.CC262)			
(1320	E 4	7NO1964	0.00207)	(1323	F 1	6NO1964	0.00139)	(1325	F 3	6NO1964	0.00252)			
(1336	C 3	27JA1967	0.00193)	(1337	C 3	2MR1967	0.00147)	(1338	C 3	28MR1967	C.C1190)			
(1339	C 5	28MR1967	0.04365)	(1340	C 7	28MR1967	C.81443)	(1341	A 3	19AP1967	C.15187)			
(1342	A 4	19AP1967	0.01624)	(1343	A 6	19AP1967	C.35710)	(1344	C 3	25AP1967	C.00165)			
(1346	C 7	21AP1967	C.07878)	(1347	E 2	23AP1967	0.00976)	(1348	E 5	23AP1967	C.14805)			
(1370	A 6	3MY1967	0.13580)	(1371	C 3	4MY1967	0.00231)	(1374	E 2	7MY1967	C.02092)			
(1376	E 5	6MY1967	0.11525)	(1408	A 3	23MY1967	0.01342)	(1410	A 6	24MY1967	C.0C564)			
(1411	C 3	31MY1967	0.01231)	(1412	C 5	31MY1967	0.00421)	(1415	E 3	28MY1967	C.CC450)			
(1416	E 5	28MY1967	0.C7654)	(1431	A 3	12JN1967	0.00772)	(1432	A 4	13JN1967	C.0C511)			
(1433	C 3	17JN1967	0.00646)	(1434	C 5	17JN1967	0.00299)	(1435	C 7	13JN1967	C.C1263)			

(1438	E 5	14JN1967	0.01452)	(1451	E 7	16JL1967	0.05512)	(1452	E 2	14JL1967	0.00852)
(1454	E 5	15JL1967	0.00200)	(1504	A 3	28AU1967	0.00741)	(1506	A 6	29AU1967	0.00523)
(1532	A 3	18SE1967	0.00329)	(1537	E 3	24SE1967	0.00431)	(1540	C 5	4OC1967	0.00496)
(1541	E 2	11OC1967	0.00532)	(1543	E 5	10OC1967	0.00718)	(1378	GS 2	9MY1967	0.00421)
(1379	GS 3	9MY1967	0.00309)	(1380	GS 4	9MY1967	0.01177)	(1381	GS 5	10MY1967	0.01431)
(1383	GS 7	10MY1967	0.00267)	(1384	GS 8	10MY1967	0.00555)	(1385	GS 9	10MY1967	0.00706)
(1387	GS10	12MY1967	0.00396)	(1389	GS13	12MY1967	0.00258)	(1392	GS16	12MY1967	0.00308)
(1395	GS19	13MY1967	0.00705)	(1396	GS20	13MY1967	0.00296)	(1397	GS21	13MY1967	0.00196)
(1554	GS 1	30C1967	0.00356)	(1555	GS 2	30C1967	0.00353)	(1563	GS11	5OC1967	0.00234)
(1565	GS13	5OC1967	0.01014)	(1566	GS14	5OC1967	0.00734)	(1567	GS15	5OC1967	0.00476)
(1568	GS16	5OC1967	0.00289)	(1569	GS17	5OC1967	0.00297)	(1570	GS18	5OC1967	0.00992)
(1571	GS19	6OC1967	0.00117)	(1572	GS20	6OC1967	0.00631)	(1573	GS21	6OC1967	0.00560)
(1574	GS22	6OC1967	0.00288)	(1575	GS23	6OC1967	0.00387)	(1544	MU 1	2OC1967	0.02383)
(1546	LU 1	2OC1967	0.02501)	(1520	MO 1	18SE1967	0.04243)	(1521	SM 1	18SE1967	0.03462)
(1522	BM 1	18SE1967	0.21334)	(1523	AA 1	19SE1967	0.00923)	(1526	MO 1	20SE1967	0.00569)
(1527	IR 1	20SE1967	0.00629)	(1531	GH 1	25SE1967	0.00845)	(1545	WL 1	4OC1967	0.23650)
(1548	CA 1	30C1967	0.01272)	(1549	MG 1	4OC1967	0.01370)	(1550	MR 1	5OC1967	0.07434)
(1553	SG 1	6OC1967	0.01469)	(1428	PL 2	25MY1967	0.48209)	(1426	PS 2	29MY1967	0.18898)
(1351	MI 2	21AP1967	0.01241)	(1427	LU 2	29MY1967	0.03632)	(1417	MO 2	22MY1967	4.48632)
(1418	SM 2	22MY1967	0.13997)	(1350	BM 2	19AP1967	1.05725)	(1425	AA 2	25MY1967	0.00884)
(1399	PW 2	5MY1967	0.00680)	(1402	TR 2	6MY1967	0.11912)	(1400	SB 2	6MY1967	0.25614)
(1352	KW 2	21AP1967	0.03436)	(1353	FR 2	23AP1967	0.04219)	(1354	GH 2	25AP1967	1.49133)
(1429	WL 2	29MY1967	3.22752)	(1403	CA 2	10MY1967	0.03923)	(1404	MG 2	10MY1967	0.01270)
(1405	ES 2	12MY1967	0.01935)	(1407	SM 2	16MY1967	0.04180)	(1349	CI 2	15AP1967	0.05748)
(1406	GB 2	13MY1967	0.16983)	(1422	GA 2	23MY1967	0.02044)	(1423	WA 2	25MY1967	0.07708)
(1424	MR 2	25MY1967	0.03997)	(							

Stephanodiscus minutus Grun. *ex* Cleve and Möll.

Cyclotella minutula Kütz., Bacill., p. 50, pl. 2, fig. 3. 1844.
Stephanodiscus minutus Grunow *ex* Cleve and Möller, Diatoms, #221. 1879.
Stephanodiscus astraea var. *minutula* Grun. *in* V. H., Syn. Diat. Belgique, pl. 95, figs. 7, 8. 1882.
Stephanodiscus balatonis Pant., Res. Wiss. erforsch. Balatonsees, p. 105, pl. 15, fig. 324. 1902.

Cells circular in valve view and rectangular in girdle view. Vegetative cells always occur singly. Valves of specimens from Lake Michigan 4-22μ in diameter with strongly concave centers. Radial striae in biseriate fascicles at the valve margins, becoming disorganized near the center of the valve. Puncta in the radial striae fine, more than 30 in 10μ. Fascicles are separated by narrow but obviously thickened radial ribs. The marginal spines arise at the ends of each of these ribs. Placement of the spines is very regular in this species and they are irregular or missing only in grossly abnormal specimens. Fascicles and spines 15-18 in 10μ at the margins of the valves.

Our concept of this taxon is based upon the material on Cleve and Möller slide #221. Most recent workers have considered this entity to be a variety of *S. astraea*. The reason for this is difficult to discern as this species has only a superficial resemblence to *S. astraea*. Its morphology is somewhat similar to that of *S. transilvanicus* but it differs from that taxon by its finer structure and in that the radial striae are always in fascicles of two.

Although *S. astraea* var. *minutula* has been widely reported, the confusion surrounding this name makes it difficult to determine the actual distribution of the taxon we treat here. In our experience in Lake Michigan it is a minor component of the offshore flora and only becomes abundant in estuaries and eutrophied inshore areas of the lake.

E4C STASTRVM TCT NC CF STATICNS 257

(60973	CH	1876	0.02362)	(46510	CH	CC1945	0.00218)	(46921	CH	23ND1945	C.0C129)			
(46917	CH	12JA1946	0.00055)	(46515	CH	20FE1946	0.04552)	(46914	CH	19AF1946	3.5C443)			
(46923	CH	22ND1946	0.10928)	(46520	CH	20DE1946	0.03358)	(46905	CH	JA1947	C.01103)			
(46909	CH	MR1947	0.00911)	(46512	CH	AP1947	C.08049)	(46916	CH	4MY1947	C.24259)			
(46906	CH	MY1947	1.55304)	(46519	CH	5JN1947	1.38086)	(46907	CH	JL1947	C.73720)			
(46913	CH	6AU1947	0.02092)	(46522	CH	21AU1947	C.10468)	(46758	EV	5JN1937	C.19970)			
(46743	EV	20JN1937	0.21838)	(46764	EV	17JL1937	0.02417)	(46757	EV	25JL1937	C.01926)			
(46747	EV	1AU1937	0.00248)	(46765	EV	30AU1937	C.00558)	(46744	EV	6OC1937	C.01463)			
(46768	EV	16MR1938	0.01470)	(46751	EV	30MR1938	C.07816)	(46772	EV	18AP1938	C.01419)			
(46756	EV	27AP1938	0.18806)	(46759	EV	19MY1938	0.02701)	(46761	EV	27MY1938	C.06813)			
(46766	EV	14DE1938	0.01584)	(1223	B 3	18MY1964	0.00469)	(1224	B 4	18MY1964	C.0C588)			
(1225	C 6	15MY1964	0.01176)	(1226	C 7	16MY1964	0.01142)	(1227	C* 2	13MY1964	C.0C219)			
(1228	D 2	14MY1964	0.00973)	(1229	D 5	14MY1964	0.19243)	(1230	E 2	16MY1964	C.14224)			
(1231	E 3	16MY1964	0.85608)	(1232	E 5	16MY1964	C.65046)	(1233	B 3	5JN2964	C.01191)			
(1234	B 3	18JN1964	0.02530)	(1439	B 6	5JN1964	0.15385)	(1236	C* 1	8JN1964	C.00875)			
(1237	C* 2	8JN1964	C.C5672)	(1238	D 3	11JN1964	0.08200)	(1239	D 4	11JN1964	C.CC116)			
(1240	D 6	10JN1964	0.01381)	(1241	E 2	13JN1964	0.34598)	(1242	E 3	13JN1964	C.52453)			
(1243	E 6	13JN1964	0.03550)	(1244	F 1	11JN1964	C.01864)	(1245	F 2	11JN1964	C.06515)			
(1246	F 3	11JN1964	C.19124)	(1440	B 6	11JL1964	0.06633)	(1441	B 6	24JL1964	C.0C881)			
(1250	C 6	10JL1964	0.02467)	(1251	C 7	16JL1964	0.00579)	(1252	C* 1	16JL1964	C.02232)			
(1253	C* 2	16JL1964	0.00913)	(1254	D 2	15JL1964	0.08044)	(1255	D 5	15JL1964	C.04363)			
(1256	E 2	14JL1964	0.08576)	(1257	E 3	14JL1964	C.72736)	(1258	F 1	6JL1964	C.02124)			
(1259	F 2	6JL1964	0.01549)	(1260	F 3	6JL1964	0.01528)	(1261	B 3	2AU1964	C.0C196)			
(1262	B 3	17AU1964	C.CC210)	(1264	C* 1	1CAU1964	C.C2510)	(1265	C* 2	1CAL1964	O.CC671)			
(1266	D 3	18AU1964	0.00702)	(1267	D 6	18AU1964	0.00216)	(1268	E 2	15AU1964	C.15149)			
(1269	E 3	15AL1964	0.34534)	(1270	F 1	1CAU1964	0.00272)	(1271	C 7	22SE1964	C.0C653)			
(1272	C* 1	1CSE1964	0.00410)	(1273	C* 2	10SE1964	0.00538)	(1274	D 1	17SE1964	C.0C469)			
(1279	E 1	16SE1964	0.0C785)	(1280	E 2	16SE1964	C.01362)	(1282	E 4	16SE1964	C.01108)			
(1283	E 5	16SE1964	0.01226)	(1285	F 1	15SE1964	C.C1165)	(1286	F 2	15SE1964	C.C2189)			
(1288	B 3	15CC1964	C.0C218)	(1445	B 6	14CC1964	0.00652)	(1289	C 7	14OC1964	C.CC44C)			
(1292	D 1	15CC1964	0.00373)	(1293	D 2	15OC1964	C.CC472)	(1294	D 3	15CC1964	C.0C330)			
(1296	D 5	14OC1964	0.0C787)	(1297	D 6	14CC1964	0.00381)	(1298	E 1	12OC1964	C.0C8C8)			
(1299	F 2	12OC1964	0.01571)	(13CC	E 3	13OC1964	C.02864)	(1301	E 4	13CC1964	C.01325)			
(1305	F 2	11OC1964	0.00173)	(1307	B 6	NO1964	C.00361)	(13C9	C* 1	10NC1964	C.0C161)			
(1310	C* 2	1CNC1964	C.0C227)	(1311	D 1	8NC1964	C.00516)	(1312	D 2	8NC1964	C.0C621)			
(1313	D 3	9ND1964	0.0C193)	(1315	D 5	9ND1964	O.0C455)	(1317	E 1	6NC1964	C.0C383)			
(1318	E 2	7NC1964	C.0C380)	(1319	E 2	7NC1964	C.00524)	(1320	E 4	7NC1964	C.C1C34)			
(1321	E 5	7ND1964	0.0C319)	(1322	E 6	7ND1964	C.C0667)	(1323	F 1	6NC1964	C.0C418)			
(1324	F 2	6ND1964	C.CC699)	(1236	C 3	27JA1967	C.00770)	(1337	C 3	2MR1967	C.41153)			
(1338	C 3	28MR1967	1.38837)	(1339	C 5	28MR1967	1.52772)	(1340	C 7	28MR1967	1.27255)			
(1341	A 3	19AP1967	0.35364)	(1342	A 4	19AP1967	1.26324)	(1343	A 6	19AP1967	C.63221)			
(1344	C 3	25AP1967	0.09761)	(1345	C 5	25AP1967	4.63910)	(1346	C 7	21AP1967	C.31245)			
(1347	E 2	23AP1967	1.13812)	(1348	E 5	23AP1967	3.93420)	(1368	A 3	4MY1967	C.C5655)			
(1369	A 4	4MY1967	0.15282)	(1370	A 6	3MY1967	C.06215)	(1371	C 3	4MY1967	C.03232)			
(1372	C 5	5MY1967	0.22098)	(1373	C 7	5MY1967	C.01141)	(1374	E 2	7MY1967	2.71966)			
(1375	E 3	7MY1967	0.24543)	(1376	E 5	6MY1967	C.25298)	(1408	A 3	23MY1967	C.C1785)			
(1409	A 4	23MY1967	0.0C298)	(1410	A 6	24MY1967	C.02255)	(1411	C 3	31MY1967	C.0C410)			
(1412	C 5	31MY1967	C.C1684)	(1413	C 7	25MY1967	C.00632)	(1414	E 2	28MY1967	C.C1008)			
(1415	E 3	28MY1967	0.01795)	(1416	E 5	28MY1967	C.15308)	(1431	A 3	12JN1967	C.C1030)			
(1432	A 4	13JN1967	0.01788)	(1433	C 3	17JN1967	C.24545)	(1434	C 5	17JN1967	C.C1794)			
(1435	C 7	13JN1967	0.00631)	(1436	E 2	15JN1967	O 01447)	(1437	E 3	15JN1967	C.0C538)			
(1438	E 5	14JN1967	0.03268)	(1446	A 3	11JL1967	C.07827)	(1447	A 4	11JL1967	C.03509)			
(1449	C 3	16JL1967	1.33746)	(1450	C 5	16JL1967	C.33324)	(1451	C 7	16JL1967	C.01772)			
(1452	E 2	14JL1967	C.6540C)	(1453	E 3	15JL1967	O.97313)	(1454	E 5	15JL1967	C.C1600)			
(1508	C 3	2SE1967	0.0C795)	(1511	E 2	1SE1967	C.42975)	(1512	E 3	1SE1967	C.36909)			
(1532	A 3	18SE1967	0.01314)	(1533	A 4	19SE1967	O.0C464)	(1534	A 6	19SE1967	C.0C931)			
(1535	C 7	20SE1967	0.0C222)	(1536	E 2	24SE1967	0.12543)	(1537	E 3	24SE1967	C.C2588)			
(1538	E 5	23SE1967	0.09391)	(1539	C 3	4OC1967	C.03C19)	(1540	C 5	4CC1967	C.0C993)			
(1541	E 2	11OC1967	C.39381)	(1542	E 3	11OC1967	C.10679)	(1543	E 5	10OC1967	C.C6465)			
(1379	GS 3	9MY1967	0.01857)	(1380	GS 4	9MY1967	C.04708)	(1381	GS 5	10MY1967	C.04055)			
(1382	GS 6	10MY1967	0.01943)	(1383	GS 7	10MY1967	C.15772)	(1384	GS 8	10MY1967	C.36972)			
(1385	GS 9	10MY1967	0.00471)	(1386	GS10	12MY1967	C.04309)	(1387	GS11	12MY1967	C.34854)			
(1390	GS14	12MY1967	0.01174)	(1392	GS16	12MY1967	C.00610)	(1393	GS17	13MY1967	C.0C822)			
(1394	GS18	13MY1967	0.04988)	(1395	GS19	13MY1967	0.01527)	(1396	GS2C	13MY1967	C.02886)			
(1397	GS21	13MY1967	0.07C64)	(1398	GS22	14MY1967	O.01214)	(1554	CS 1	3OC1967	C.08895)			
(1555	CS 2	3CC1967	0.02472)	(1556	CS 3	3OC1967	C.03650)	(1557	CS 4	3OC1967	C.01495)			
(1558	CS 5	4OC1967	0.01189)	(1559	CS 7	4OC1967	C.00350)	(1560	CS 8	4OC1967	C.C1889)			
(1561	CS 9	4CC1967	0.01761)	(1562	GS1C	5OC1967	C.00740)	(1563	CS11	5OC1967	C.0C234)			
(1568	GS16	5OC1967	0.0C144)	(1569	GS17	5CC1967	C.00446)	(1570	GS1E	5OC1967	O.0C992)			
(1571	GS19	6OC1967	0.00351)	(1572	GS20	6OC1967	C.00631)	(1573	CS21	6OC1967	C.10527)			
(1574	GS22	6CC1967	0.01151)	(1575	GS28	6CC1967	C.00387)	(1544	PU 1	2OC1967	C.17633)			
(1547	MS 1	2CC1967	0.00798)	(1546	LU 1	2CC1967	C.42C15)	(1521	SH 1	18SE1967	C.41539)			
(1522	EH 1	18SE1967	0.0C725)	(1523	RA 1	19SE1967	C.04613)	(1526	MO 1	20SE1967	C.19912)			
(1527	TR 1	20SE1967	0.15723)	(1528	SR 1	20SE1967	O.01444)	(1529	KW 1	20SE1967	C.26382)			
(1530	FR 1	24SE1967	0.02000)	(1531	GH 1	25SE1967	O.01691)	(1545	WL 1	20C1967	1.08115)			
(1548	CA 1	3OC1967	0.01272)	(1551	ES 1	5OC1967	C.12781)	(1552	SM 1	6OC1967	C.03301)			
(1550	MR 1	5OC1967	0.73101)	(1553	SG 1	6OC1967	C.41863)	(1428	PU 2	29MY1967	C.03013)			
(1426	MS 2	29MY1967	0.07349)	(1351	MI 2	21AP1967	2.53220)	(1427	LU 2	29MY1967	C.3C266)			
(1417	MO 2	22MY1967	2.27307)	(1350	BH 2	19AP1967	1.33918)	(1425	PA 2	29MY1967	C.18566)			
(1399	PM 2	5MY1967	C.25843)	(1401	MO 2	6MY1967	O.5468C)	(1402	TR 2	6MY1967	O.55300)			
(1400	SB 2	6MY1967	0.55397)	(1352	KW 2	21AP1967	2.19893)	(1353	FR 2	23AP1967	C.44304)			
(1354	GH 2	23AP1967	1.27C39)	(1429	WL 2	29MY1967	C.16987)	(1403	CA 2	10MY1967	2.09232)			
(1404	MQ 2	10MY1967	0.06352)	(1405	ES 2	12MY1967	C.04515)	(1407	SM 2	14MY1967	C.09554)			
(1349	CI 2	19AP1967	0.57475)	(1406	GB 2	13MY1967	O.04313)	(1419	BU 2	23MY1967	C.1C985)			
(1420	IH 2	23MY1967	0.09063)	(1421	CH 2	23MY1967	C.10409)	(1422	GA 2	23MY1967	C.05620)			
(1423	WA 2	25MY1967	C.57808)	(1424	KA 2	25MY1967	0.14655)							

Stephanodiscus niagarae Ehr.

Stephanodiscus niagarae Ehrenberg, Ber. Akad. Wiss. Berlin 1845:80. 1845.

Cells circular in valve view and rectangular in girdle view. Vegetative cells always occur singly. Valves of specimens from Lake Michigan 42-94μ in diameter with slightly concave centers. Radial striae in biseriate

fascicles near the valve margins, becoming uniseriate near the centers. Puncta in the radial striae coarse, 12-16 in 10μ. Fascicles closely packed with only small hyaline spaces between them. The coarse spines of this species are sub-marginal and irregularly arranged, usually between each 2-4 fascicles. Fascicles 5-8 in 10μ at the valve margin. In this taxon a prominent marginal area of fine, irregularly arranged puncta is present. The spines arise from the inner margin of this zone and it is separated from the fascicles by an unornamented space.

This species much resembles *S. astraea* (Ehr.) Grun. and a good deal of speculation has been put forth in the literature regarding the relationship between the two taxa and about their distributions. Our concept of *S. niagarae* is based upon specimens attributed to Bailey in the Academy of Natural Sciences of Philadelphia (ANSP 42768) which are believed to be derived from the original material from Niagara Falls from which this taxon was described.

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(60973	CH		1876	0.18895)	(3540	CH		11MY1875	0.01864)	(3541	CH		1FE1881	1.29121)
(46910	CH		0C1945	0.00437)	(46921	CH		23NO1945	0.00776)	(46917	CH		12JA1946	0.0C166)
(46914	CH		19AP1946	0.03630)	(46924	CH		10MY1946	0.06067)	(46923	CH		22NO1946	0.03497)
(46920	CH		20DE1946	3.00585)	(46905	CH		JA1947	0.00613)	(46909	CH		MR1947	0.01366)
(46912	CH		AP1947	0.04599)	(46916	CH		4MY1947	0.02443)	(46906	CH		MY1947	0.03982)
(46919	CH		5JN1947	0.00607)	(46907	CH		JL1947	0.03205)	(46922	CH		21AU1947	0.02859)
(46758	EV		5JN1937	0.05706)	(46771	EV		11JN1937	0.03804)	(46743	EV		20JN1937	0.11989)
(46745	EV		3JL1937	0.08359)	(46770	EV		9JL1937	0.11331)	(46764	EV		17JL1937	0.17728)
(46757	EV		25JL1937	0.06259)	(46747	EV		1AU1937	0.06436)	(46763	EV		23AU1937	0.06088)
(46765	EV		30AU1937	0.03904)	(46769	EV		7SE1937	0.04342)	(46752	EV		15SE1937	0.04354)
(46760	EV		22SE1937	0.07386)	(46750	EV		24SE1937	0.01885)	(46744	EV		6OC1937	0.0C488)
(46748	EV		13OC1937	0.10675)	(46767	EV		27OC1937	0.C0387)	(46749	EV		12MR1938	0.07282)
(46768	EV		16MR1938	0.02940)	(46762	EV		18MR1938	0.11028)	(46751	EV		30MR1938	0.03350)
(46772	EV		18AP1938	0.06388)	(46756	EV		27AP1938	0.05541)	(46759	EV		19MY1938	0.31735)
(46761	EV		27MY1938	0.10902)	(46766	EV		14DE1938	0.01584)	(1224	B 4		18MY1964	0.0C784)
(1225	C 6		15MY1964	0.0C392)	(1226	C 7		16MY1964	0.01903)	(1227	C* 2		13MY1964	0.CC11C)
(1228	D 2		14MY1964	0.01752)	(1229	D 5		14MY1964	0.00634)	(1230	E 2		16MY1964	0.02074)
(1231	E 3		16MY1964	0.04158)	(1232	E 5		16MY1964	0.01217)	(1234	B 3		18JN1964	0.02812)
(1236	C* 1		8JN1964	0.01225)	(1237	C* 2		8JN1964	0.01547)	(1238	D 3		11JN1964	0.0C60C)
(1241	E 2		13JN1964	0.00739)	(1242	E 3		13JN1964	0.0C599)	(1243	E 6		13JN1964	0.01044)
(1244	F 1		11JN1964	0.00110)	(1245	F 2		11JN1964	0.00692)	(1246	F 3		11JN1964	0.0C598)
(1247	B 3		14JL1964	0.00427)	(1255	D 5		15JL1964	0.00770)	(1256	E 2		14JL1964	0.0C366)
(1257	E 3		14JL1964	0.00718)	(1258	F 1		6JL1964	0.00472)	(1259	F 2		6JL1964	0.0C310)
(1260	F 3		6JL1964	0.00386)	(1262	B 3		17AU1964	0.00210)	(1264	C* 1		10AU1964	0.0C386)
(1266	D 3		18AU1964	0.00351)	(1278	D 6		18SE1964	0.00384)	(1284	E 6		17SE1964	0.0C31e)
(1285	F 1		15SE1964	0.01165)	(1288	B 3		15OC1964	0.00218)	(1301	E 4		13OC1964	0.00883)
(1302	E 5		13OC1964	0.01620)	(1304	F 1		11OC1964	0.00494)	(1305	F 2		11OC1964	0.0C345)
(1318	E 2		7NO1964	0.00190)	(1320	E 4		7NO1964	0.00207)	(1321	E 5		7NO1964	0.00638)
(1323	F 1		6NO1964	0.00557)	(1324	F 2		6NO1964	0.00699)	(1336	C 3		27JA1967	0.00385)
(1337	C 3		2MR1967	0.00294)	(1338	C 3		28MR1967	0.02248)	(1339	C 5		28MR1967	0.17148)
(1340	C 7		28MR1967	0.01018)	(1341	A 3		19AP1967	0.01953)	(1342	A 4		19AP1967	0.03248)
(1343	A 6		19AP1967	0.00347)	(1344	C 3		25AP1967	0.01324)	(1345	C 5		25AP1967	0.15009)
(1346	C 7		21AP1967	0.01865)	(1347	E 2		23AP1967	0.04065)	(1348	E 5		23AP1967	0.01919)
(1368	A 3		4MY1967	0.15708)	(1369	A 4		4MY1967	0.32800)	(1370	A 6		3MY1967	0.00691)
(1371	C 3		4MY1967	0.08080)	(1372	C 5		5MY1967	0.64548)	(1373	C 7		5MY1967	0.15118)
(1374	E 2		7MY1967	0.18828)	(1375	E 3		7MY1967	0.12512)	(1376	E 5		6MY1967	0.01968)
(1408	A 3		23MY1967	0.16992)	(1409	A 4		23MY1967	0.05356)	(1410	A 6		24MY1967	0.01691)
(1411	C 3		31MY1967	0.08206)	(1412	C 5		31MY1967	0.51772)	(1413	C 7		25MY1967	0.C5370)
(1414	E 2		28MY1967	0.06045)	(1415	E 3		28MY1967	0.07870)	(1416	E 5		28MY1967	0.06123)
(1431	A 3		12JN1967	0.01287)	(1432	A 4		13JN1967	0.10093)	(1433	C 3		17JN1967	0.02584)
(1434	C 5		17JN1967	0.57722)	(1435	C 7		13JN1967	0.01579)	(1436	E 2		15JN1967	0.18092)
(1437	E 3		15JN1967	0.13458)	(1438	E 5		14JN1967	0.07262)	(1449	C 3		16JL1967	0.24456)
(1450	C 5		16JL1967	0.08565)	(1452	E 2		14JL1967	0.00639)	(1453	E 3		15JL1967	0.C8847)
(1504	A 3		28AU1967	0.00247)	(1509	C 5		2SE1967	0.01009)	(1510	C 7		29AU1967	0.0C316)
(1511	E 2		1SE1967	0.00921)	(1512	E 3		1SE1967	0.01963)	(1532	A 3		18SE1967	0.00329)
(1537	E 3		24SE1967	0.06465)	(1538	E 5		23SE1967	0.01105)	(1542	E 3		11OC1967	0.02034)
(1377	GS 1		9MY1967	0.05541)	(1378	GS 2		9MY1967	0.03364)	(1379	GS 3		9MY1967	0.13308)
(1380	GS 4		9MY1967	0.04540)	(1381	GS 5		10MY1967	0.02385)	(1382	GS 6		10MY1967	0.03886)
(1383	GS 7		10MY1967	0.07485)	(1384	GS 8		10MY1967	0.25880)	(1385	GS 9		10MY1967	0.02119)
(1386	GS10		12MY1967	0.16087)	(1387	GS11		12MY1967	0.25349)	(1388	GS12		12MY1967	0.84465)
(1389	GS13		12MY1967	0.18049)	(1390	GS14		12MY1967	0.32883)	(1391	GS15		12MY1967	0.83800)
(1392	GS16		12MY1967	0.73655)	(1393	GS17		13MY1967	0.46844)	(1394	GS18		13MY1967	0.56325)
(1395	GS19		13MY1967	0.69873)	(1396	GS20		13MY1967	0.49203)	(1397	GS21		13MY1967	0.77832)
(1398	GS22		14MY1967	0.04251)	(1554	GS 1		3OC1967	0.01423)	(1555	GS 2		3OC1967	0.0C353)
(1556	GS 3		3OC1967	0.01043)	(1559	GS 7		4OC1967	0.01049)	(1560	GS 8		4OC1967	0.CC945)
(1563	GS11		5OC1967	0.01637)	(1564	GS12		5OC1967	0.01152)	(1565	GS13		5OC1967	0.01014)
(1566	GS14		5OC1967	0.01835)	(1567	GS15		5OC1967	0.55570)	(1568	GS16		5OC1967	0.11255)
(1569	GS17		5OC1967	1.76891)	(1570	GS18		5OC1967	0.87267)	(1571	GS19		6OC1967	0.28684)
(1572	GS20		6OC1967	0.31545)	(1573	GS21		6CC1967	0.36509)	(1574	GS22		6CC1967	0.2..36)
(1575	GS23		6OC1967	2.70940)	(1544	MU 1		2OC1967	0.24067)	(1547	MS 1		2OC1967	0.CC798)
(1546	LU 1		2OC1967	0.02501)	(1520	MO 1		18SE1967	0.09901)	(1521	SH 1		18SE1967	0.0C577)
(1522	BH 1		18SE1967	0.0C365)	(1526	MO 1		20SE1967	0.01138)	(1527	TR 1		2OSE1967	0.01887)
(1528	SB 1		2OSE1967	0.02888)	(1531	GH 1		25SE1967	0.00845)	(1545	WL 1		2OC1967	0.C4054)
(1549	MQ 1		4OC1967	0.02741)	(1551	ES 1		5OC1967	0.11183)	(1552	SM 1		6OC1967	1.16210)
(1550	MR 1		5OC1967	1.32573)	(1553	SG 1		6OC1967	2.70270)	(1428	MU 2		29MY1967	0.67492)
(1426	MS 2		29MY1967	0.07349)	(1351	MI 2		21AP1967	0.01241)	(1427	LU 2		29MY1967	0.25424)
(1417	MO 2		22MY1967	0.10468)	(1418	SH 2		22MY1967	0.01555)	(1350	BH 2		19AP1967	0.02643)
(1425	RA 2		25MY1967	0.02652)	(1399	PA 2		5MY1967	0.04761)	(1401	MO 2		6MY1967	0.02352)

(1402	TR 2	6MY1967	C.05790)	(1400	SB 2	6MY1967	0.02978)	(1352	KN 2	21AP1967	C.02577)
(1353	FR 2	23AP1967	C.01055)	(1354	GM 2	25AP1967	C.10874)	(1429	WL 2	29MY1967	C.44591)
(1403	CA 2	10MY1967	0.15692)	(1404	MG 2	10MY1967	C.19055)	(1405	ES 2	12MY1967	C.59985)
(1407	SM 2	14MY1567	1.52863)	(1349	CI 2	15AP1967	C.00718)	(1406	CB 2	13MY1967	C.86265)
(1419	BU 2	23MY1967	0.01831)	(1420	IM 2	23MY1967	0.01511)	(1421	CH 2	23MY1967	C.01735)
(1422	GA 2	23MY1967	0.01022)	(1423	WA 2	25MY1967	0.01285)	(1424	KN 2	25MY1967	C.C6661)

Stephanodiscus niagarae var. *magnifica* Fricke

Stephanodiscus niagarae var. *magnifica* Fricke, A. Schmidt's Atlas Diat., pl. 227, figs. 10-13. 1901.

Differs from the nominate variety in its more robust structure. The puncta in the fascicles are closely packed and appear hexagonal in surface focus and circular in deep focus. Valves of Lake Michigan specimens are from 42-106μ in diameter. Puncta in the radial striae 10-12 in 10μ. Fascicles 4-5 in 10μ, becoming indistinct near the marginal zone due to irregular placement. The submarginal spines are very long and coarse and tend to be somewhat more regular in their placement than in the nominate variety. In the larger specimens a second circlet of smaller spines is found on the valve surface, surrounding the sunken central portion of the valve.

This entity reaches its greatest abundance in eutrophic, hardwater lakes in western North America. Its occurrence in Lake Michigan is limited to eutrophied inshore areas and estuaries.

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160973	CH	1876	0.23618)	146516	CH	4MY1547	C.00068)	146763	EV	23AU1537	C.02029)
146760	EV	22SE1537	0.00492)	(1223	B 3	18MY1964	0.00156)	(1224	B 4	18MY1964	C.CC196)
(1238	D 3	11JN1964	0.CC600)	(1268	E 2	15AU1964	C.00274)	(1322	E 6	7NO1964	C.0C333)
(1369	A 4	4MY1967	0.00745)	(1370	A 6	3MY1967	0.00230)	(1372	C 5	5MY1967	C.00709)
(1408	A 3	23MY1967	0.CC894)	(1416	E 5	28MY1967	0.00875)	(1377	GS 1	9MY1967	C.0C396)
(1382	GS 6	10MY1967	0.00278)	(1391	GS15	12MY1967	C.02394)	(1392	GS16	12MY1967	C.02157)
(1396	GS20	13MY1967	C.0C518)	(1544	MU 1	2CC1967	C.C1191)	(1520	MD 1	18SE1967	C.C3300)
(1529	KW 1	2GSE1967	0.01199)	(1531	GM 1	25SE1967	C.00845)	(1428	MU 2	29MY1967	C.CC301)
(1417	MD 2	22MY1967	0.00374)	(1350	BM 2	15AP1967	C.00441)	(1406	CB 2	13MY1967	C.22645)

Stephanodiscus subtilis (Van Goor) A. Cleve

Melosira subtilis Van Goor, Recueil Trav. Bot. Néerlandis, 21:359, fig. 8. 1924.
Stephanodiscus subtilis (Van Goor) A. Cleve-Euler, K. Svenska Vet.-Akad. Handl., Fjärde Serien, 2(1):54, fig. 72. 1951.

Cells circular in valve view and rectangular, elongate in the pervalvar axis, in girdle view. Vegetative cells always occur in filamentous colonies, joined at the valve surfaces. Cell walls are very lightly silicified, and the frustules are often deformed in prepared collections. Valves of specimens from Lake Michigan 6-22μ in diameter, only slightly concave at the center. The radial striae are contained in biseriate fascicles near the margins of the valve. The fascicles gradually taper and become uniseriate as they approach the center of the valve but retain their identity. The center of the valve is usually marked by a rosette of puncta. Puncta in the radial striae very fine, barely resolvable with the light microscope, about 40 in 10μ. The fascicles are separated by narrow, but appreciably thickened radial ribs. A very small marginal spine occurs at the termination of each rib. Fascicles 14-16 in 10μ at the valve margin.

This species resembles *S. tenuis* in size and general morphologic structure but differs from that taxon in occurring in colonies, having biseriate rather than multiseriate fascicles of striae on the valve surface, and by its finer structure and ornamentation. Its structure also much resembles that of *S. damasi* Hust. (1949) but *S. subtilis* does not approach the maximum size of that taxon and has much finer ornamentation.

This species is apparently a recent introduction into the flora of Lake Michigan and has only been found in quantity in eutrophied areas that also have considerable chloride contamination. Previous reports of its occurrence indicate that it flourishes only in such situations.

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146517	CH		12JA1946	0.00028	146515	CH		20FE1946	C.C1707	146924	CH		10MY1946	C.C4585	
146923	CH		22NO1946	0.01311	146920	CH		20DE1946	0.00031	146909	CH		MR1947	C.C1821	
146916	CH		4MY1947	0.CC17C	146919	CH		5JN1947	C.00455	146922	CH		21AU1947	C.CC097	
146758	EV		5JN1937	0.73461	146771	EV		11JN1937	C.00238	146784	EV		17JL1937	C.41096	
146757	EV		25JL1937	C.1685C	146747	EV		14AU1937	C.02475	146763	EV		23AU1937	C.C4C58	
146752	EV		15SE1937	0.04354	146750	EV		24SE1937	C.01885	146748	EV		13DC1937	C.02135	
146745	EV		12MR1538	0.19420	146762	EV		18MR1538	C.04411	146751	EV		30MR1538	C.C335C	
146756	EV		27AP1538	0.0C168	146761	EV		27MY1538	C.C0545	146766	EV		14DE1938	C.C1584	
1236	C* 1		6JN1964	0.CC35C	1237	C* 2		8JN1964	C.C0258	1240	D 6		10JA1964	C.CC460	
1241	E 2		13JN1964	0.CC148	1243	E 6		13JN1964	C.00209	1440	B 6		11JL1964	C.C1474	
1252	C* 1		16JL1964	C.0C279	1253	C* 2		16JL1964	C.C0228	1254	D 2		15JL1964	C.CC383	
1255	D 5		15JL1964	0.0077C	1256	E 2		14JL1964	0.00183	1257	E 3		14JL1964	0.0C239	
1264	C* 1		1CAU1964	0.CC965	1444	B 6		19SE1964	C.00303	1271	C 7		22SE1964	C.CC653	
1272	C* 1		10SE1964	C.01642	1277	D 4		18SE1964	C.C0620	1278	D 6		18SE1964	C.CC384	
1279	E 1		16SE1964	0.07068	1284	E 6		17SE1964	C.C0635	1287	F 3		15SE1964	C.C1001	
1288	B 3		15OC1964	C.CC218	1295	D 4		15CC1964	0.01784	1297	D 6		14OC1964	C.CC190	
1298	E 1		12CC1964	0.00539	1300	E 6		13OC1964	C.C0358	1305	F 2		11CC1964	C.CC173	
1306	F 3		11CC1964	C.CC277	1307	B 6		NC1964	C.C0361	1309	C* 1		10NC1964	C.CC161	
1311	D 1		8NC1964	0.00516	1313	D 3		9NC1964	C.C0193	1314	D 4		9NC1964	C.CC287	
1316	D 6		9NC1964	0.00378	1317	E 1		6ND1964	C.00574	1318	E 2		7NC1964	C.CC380	
1319	E 3		7NC1964	0.00262	1320	E 4		7NC1964	C.00207	1321	E 5		7NC1964	C.CC956	
1323	F 1		6ND1964	0.00139	1324	F 2		6ND1964	0.00466	1339	C 5		28MR1967	C.CC312	
1341	A 3		19AP1967	0.00434	1370	A 6		3MY1967	C.00230	1416	E 5		28MY1967	C.00437	
1431	A 3		12JN1967	0.00257	1432	A 4		13JN1967	0.00255	1433	C 3		17JN1967	C.C1292	
1435	C 7		13JN1967	0.00316	1438	E 6		14JN1967	C.00726	1446	A 3		11JL1967	C.CC245	
1447	A 4		11JL1967	C.00234	1451	C 7		16JL1967	0.00197	1452	E 2		14JL1967	C.01277	
1454	E 5		15JL1967	C.CC200	1532	A 3		18SE1967	0.00657	1533	A 4		19SE1967	C.C2785	
1534	A 6		19SE1967	0.00620	1535	C 7		20SE1967	0.01288	1536	E 2		24SE1967	C.01091	
1537	E 3		24SE1967	0.01294	1541	E 2		11OC1967	C.07983	1542	E 3		11OC1967	C.C2C34	
1543	E 5		10OC1967	0.01437	1554	GS 1		3OC1967	C.08539	1555	CS 2		3OC1967	C.01059	
1556	GS 3		3CC1967	0.0265C	1557	GS 4		3CC1967	C.02990	1558	CS 5		4CC1967	C.CC743	
1559	GS 7		4CC1967	C.01049	1560	GS 8		4CC1967	0.03306	1561	CS 9		4DC1967	C.CC587	
1563	GS12		5CC1967	0.00468	1564	GS12		5OC1967	C.00165	1565	GS13		5CC1967	C.00507	
1566	GS14		9CC1967	0.00183	1569	GS17		9CC1967	0.00149	1571	GS19		6DC1967	C.CC059	
1573	GS21		6CC1967	C.00112	1575	GS28		6CC1967	C.00129	1544	PU 1		2CC1967	C.1E2C3	
1547	MS 1		2CC1967	0.00798	1546	LO 1		2CC1967	C.13005	1521	SH 1		18SE1967	C.04616	
1522	BH 1		18SE1967	2.56742	1523	RA 1		19SE1967	0.08303	1526	PO 1		2CSE1967	1.1E33E	
1527	TR 1		2CSE1967	1.00629	1528	SB 1		2CSE1967	C.50534	1529	RA 1		20SE1967	C.05593	
1530	FR 1		24SE1967	0.10001	1531	GR 1		25SE1967	C.48183	1545	WL 1		2DC1967	C.29056	
1548	CA 1		3CC1967	0.01272	1549	MC 1		4CC1967	0.10963	1551	ES 1		5CC1967	C.C3994	
1550	MR 1		5CC1967	0.64950	1553	SG 1		6CC1967	0.02203	1428	PU 2		29MY1967	C.53C3C	
1426	MS 2		29MY1967	0.01050	1351	MI 2		21AP1967	C.00621	1427	LO 2		29MY1967	C.02421	
1417	PO 2		22MY1967	0.04F [illegible]	1350	BH 2		19AP1967	3.24222	1401	PO 2		8MY1967	C.C294C	
1402	TH 2		8MY1967	0.08664	1400	SB 2		6MY1967	1.33429	1352	KN 2		21AP1967	C.01718	
1354	GH 2		25AP1967	C.01036	1429	WL 2		29MY1967	0.07432	1349	CI 2		19AP1967	C.0C359	
1406	CB 2		13MY1967	0.00270	1419	BL 2		23MY1967	C.01831	1422	CA 2		23MY1967	C.C1533	
1423	WA 2		25MY1967	0.04710											

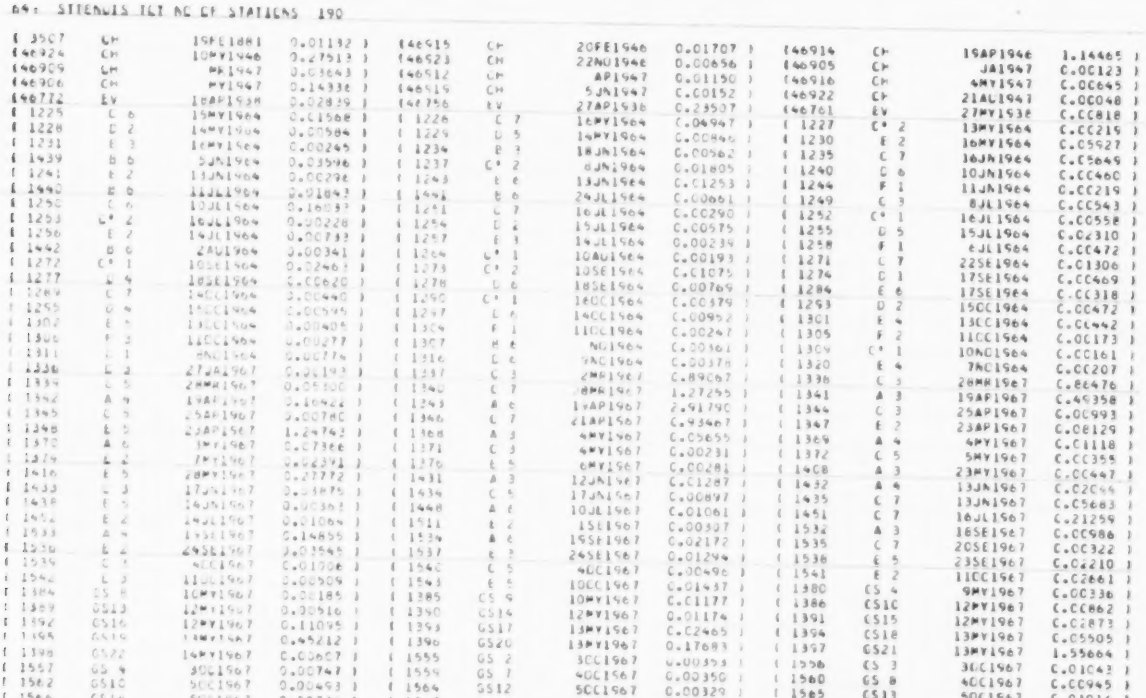
Stephanodiscus tenuis Hust.

Stephanodiscus tenuis Hustedt *ex* Huber-Pestalozzi, Binnengew., Vol. 16, Teil 2, Hälfte 2, p. 411, pl. 122, fig. 506. 1942.

Cells circular in valve view and rectangular in girdle view. Vegetative cells occur singly or in colonies. Valves of specimens from Lake Michigan 12-25μ in diameter without marked depression in the central portion. Radial striae in multiseriate (usually 4-5) fascicles near the margin. The fascicles gradually taper but retain their identity to near the center of the valve. Some of the fascicles become uniseriate and end about one-quarter the valve diameter from the center, others become sinuous and extend to near the center of the valve. The center of the valve is often marked by a small rosette of puncta. The fascicles are separated by narrow, but noticeably

thickened ribs. The spines are small and very regular in their placement, one spine occurring at the end of each interfascicular rib. The spines have apparently thickened bases. Structure of the entire valve fine and difficult to resolve. Puncta in the radial striae fine, about 24-30 in 10μ. Fascicles and spines 6-7 in 10μ at the margins of the valves.

Because of its small size and fine structure this species is difficult to distinguish from other small species of the genus, especially *S. hantzschii*, unless considerable care is exercised. In structure it most resembles *S. transilvanicus* but it is easily distinguished from that species by its smaller size range and much finer structure.



Stephanodiscus transilvanicus Pant.

Stephanodiscus transilvanicus Pantocsek, Beitr. Kenntn. Foss. Bacill. Ungarns, p. 96, Beitgr. III, pl. 8, fig. 125. 1905.
Stephanodiscus astraea var. *intermedia* Fricke *in*: A. Schmidt's Atlas Diat., pl. 225, figs. 37-39. 1901.

Stephanodiscus astraea var. *transilvanica* Fricke *in*: A. Schmidt's Atlas Diat., pl. 226, figs. 2-22. 1901.
Stephanodiscus astraea var. *multipunctata* Fricke *in*: A. Schmidt's Atlas Diat., pl. 226, figs. 23-24. 1901.

Cells circular in valve view and rectangular in girdle view. Vegetative cells always occur singly. Valves of specimens from Lake Michigan 14-60μ in diameter, with markedly concave center. Radial striae in multiseriate (usually 4-6) at the margins, fascicles becoming uniseriate and, eventually, disorganized as they approach the sunken center portion of the valve. Puncta in the radial striae usually fine but irregular in size and placement, 14-20 in 10μ. The fascicles are separated by quite wide and markedly thickened radial ribs. The spines are regularly placed in this species and one spine usually occurs at the end of each rib. A narrow marginal zone of fine, irregularly arranged, puncta is present in the larger individuals and the ribs and spines extend into this zone. In smaller specimens this feature is not apparent in valve view due to the accentuated contour of the valve. Fascicles and spines 3-5 in 10μ at the margins of the valves.

Although the only reports of this species from Lake Michigan are those of Skvortzow (1937), it is the most abundant large member of the genus in the offshore plankton at the present time and is abundant in collections dating back to 1876.

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(60973	CH	1876	3.47189	(3540	CH	11MY1875	C.47524	(3541	CH	1FE1881	1.55444
(3507	CH	19FE1881	0.27168	(46910	CH	DC1945	C.00109	(46921	CH	23ND1945	C.00841
(46917	CH	12JA1946	0.09898	(46915	CH	20FE1946	0.26177	(46914	CH	19AP1946	1.07524
(46924	CH	10MY1946	0.55026	(46923	CH	22ND1946	0.01748	(46920	CH	20DE1946	C.01695
(46905	CH	JA1947	0.11398	(46909	CH	MR1947	0.59196	(46912	CH	AP1947	C.13798
(46916	CH	4MY1947	0.03325	(46906	CH	MY1947	0.12942	(46919	CH	5JN1947	C.08194
(46907	CH	JL1947	0.44873	(46913	CH	6AU1947	0.01046	(46922	CH	21AU1947	C.05767
(46758	EV	5JN1937	0.66329	(46771	EV	11JN1937	C.37326	(46743	EV	20JN1937	C.21838
(46765	EV	3JL1937	0.08359	(46764	EV	17JL1937	0.12893	(46757	EV	25JL1937	C.10110
(46747	EV	1AU1937	0.01485	(46763	EV	23AU1937	C.02029	(46769	EV	7SE1937	C.04342
(46752	EV	15SE1937	C.02177	(46744	EV	6OC1937	0.00975	(46748	EV	13OC1937	C.38429
(46767	EV	27OC1937	0.00774	(46745	EV	12MR1938	C.19420	(46768	EV	16MR1938	C.10290
(46762	EV	18MR1938	0.06617	(46751	EV	30MR1938	0.05583	(46772	EV	18AP1938	C.12775
(46756	EV	27AP1938	0.14776	(46759	EV	19MY1938	0.29710	(46761	EV	27MY1938	C.11719
(1223	B 3	18MY1964	0.02188	(1224	B 4	18MY1964	0.10195	(1225	C 6	19MY1964	C.05880
(1226	C 7	16MY1964	0.05327	(1227	C* 2	13MY1964	C.04935	(1228	D 2	14MY1964	C.23161
(1229	D 5	14MY1964	0.26855	(1230	E 2	16MY1964	C.05038	(1231	E 3	16MY1964	C.85608
(1232	E 5	16MY1964	0.79133	(1233	B 3	5JN2964	C.03096	(1234	B 3	18JN1964	C.00281
(1235	C 7	16JN1964	0.01130	(1439	B 6	5JN1964	C.02198	(1236	C* 1	8JA1964	C.C1750
(1237	C* 2	8JN1964	0.03351	(1238	D 3	11JN1964	C.25400	(1239	D 4	11JN1964	C.C2785
(1240	D 6	10JN1964	C.08130	(1241	E 2	13JN1964	C.56924	(1242	E 3	13JN1964	C.41963
(1243	E 6	13JN1964	0.22651	(1244	F 1	11JN1964	C.08114	(1245	F 2	11JN1964	C.22128
(1246	F 3	11JN1964	C.20319	(1247	B 3	14JL1964	C.00427	(1248	B 3	24JL1964	C.00985
(1440	B 6	11JL1964	0.01106	(1441	B 6	24JL1964	C.03745	(1249	C 3	8JL1964	C.CC272
(1250	C 6	10JL1964	0.02878	(1251	C 7	16JL1964	0.01738	(1252	C* 1	16JL1964	C.CC837
(1253	C* 2	16JL1964	0.04108	(1254	D 2	15JL1964	0.18004	(1255	D 5	15JL1964	C.18993
(1256	E 2	14JL1964	0.13556	(1257	E 3	14JL1964	C.50245	(1258	F 1	6JL1964	C.3C441
(1259	F 2	6JL1964	0.16423	(1260	F 3	6JL1964	0.14134	(1261	B 3	2AU1964	C.CC196
(1262	B 3	17AU1964	0.C2310	(1442	B 6	2AU1964	C.00682	(1443	B 6	16AU1964	C.CC198
(1263	C 7	15AU1964	0.00400	(1264	C* 1	10AU1964	C.00579	(1265	C* 2	10AU1964	C.CC671
(1266	D 3	18AU1964	0.05963	(1268	E 2	15AU1964	C.20243	(1269	E 3	15AU1964	C.76742
(1270	F 1	10AU1964	0.01361	(1444	B 6	19SE1964	C.04244	(1271	C 7	22SE1964	C.01959
(1273	C* 2	10SE1964	0.02688	(1274	D 1	17SE1964	0.01408	(1275	D 2	17SE1964	C.C1240
(1276	D 3	18SE1964	0.02235	(1278	D 6	18SE1964	0.01153	(1280	E 2	16SE1964	C.03404
(1281	E 3	16SE1964	0.16482	(1282	E 4	16SE1964	0.02216	(1283	E 5	16SE1964	C.12872
(1284	E 6	17SE1964	0.06953	(1285	F 1	15SE1964	C.0524.	(1286	F 2	15SE1964	C.C1C95
(1287	F 3	15SE1964	0.01001	(1445	B 6	14OC1964	0.00326	(1289	C 7	14OC1964	C.15391
(1290	C* 1	16CC1964	0.01137	(1291	C* 2	16CC1964	C.00734	(1293	D 2	15OC1964	C.0C943
(1294	D 3	15OC1964	0.06593	(1295	D 4	15OC1964	0.08324	(1296	D 5	14OC1964	C.02754
(1297	D 6	14OC1964	0.02666	(1298	E 1	12CC1964	C.01885	(1299	E 2	12OC1964	C.C1257
(1300	E 3	13OC1964	0.11455	(1301	E 4	13OC1964	0.18546	(1302	E 5	13OC1964	C.04454
(1303	E 6	13OC1964	C.C2799	(1304	F 1	11CC1964	0.00247	(1305	F 2	11OC1964	C.0C518
(1306	F 3	11OC1964	0.00554	(1307	B 6	NO1964	0.00361	(1308	C 7	6NO1964	C.01521
(1309	C* 1	10ND1964	0.00322	(1310	C* 2	10ND1964	C.00454	(1311	D 1	8NO1964	C.C0258
(1312	D 2	8NO1964	0.00621	(1313	D 3	9NO1964	C.09653	(1314	D 4	9NO1964	C.04019
(1315	D 5	9NO1964	0.03185	(1317	E 1	6NO1964	0.C0574	(1318	E 2	7NO1964	C.C0181
(1319	E 3	7NO1964	0.18328	(1320	E 4	7NO1964	0.05584	(1321	E 5	7NO1964	C.02873
(1322	E 6	7NO1964	0.03666	(1323	F 1	6NO1964	0.00279	(1324	F 2	6NO1964	C.C1398
(1325	F 3	6NO1964	0.00756	(1336	C 3	27JA1967	0.01540	(1337	C 3	2MR1967	0.C0671
(1338	C 3	28MR1967	1.42011	(1339	C 5	28MR1967	2.07333	(1340	C 7	28MR1967	C.16580
(1341	A 3	19AP1967	0.18225	(1342	A 4	19AP1967	0.50530	(1343	A 6	19AP1967	C.21120
(1344	C 3	25AP1967	0.28952	(1345	C 5	25AP1967	1.77378	(1346	C 7	21AP1967	C.23367
(1347	E 2	23AP1567	1.36574	(1348	E 5	23AP1967	0.24400	(1368	A 3	4MY1967	1.97926
(1369	A 4	4MY1967	5.47915	(1370	A 6	3MY1967	C.21637	(1371	C 3	4MY1967	1.93915
(1372	C 5	5MY1967	6.45482	(1373	C 7	5MY1967	2.59570	(1374	E 2	7MY1967	2.3C126
(1375	E 3	7MY1967	0.84218	(1376	E 5	6MY1967	C.78705	(1408	A 3	23MY1967	1.56508

(1409	A 4	23MY1967	C.41655)	(1410	A 6	24MY1967	1.18403)	(1411	C 3	31MY1967	C.96008)
(1412	C 5	31MY1967	2.35710)	(1413	C 7	25MY1967	2.43232)	(1414	E 2	28MY1967	1.41058)
(1415	E 3	28MY1967	0.94437)	(1416	E 5	28MY1967	C.20556)	(1431	A 3	12JN1967	C.36048)
(1432	A 4	13JN1967	4.11280)	(1433	C 3	17JN1967	1.13034)	(1434	C 5	17JN1967	3.76839)
(1435	C 7	13JN1967	0.59988)	(1436	E 2	15JN1967	0.33232)	(1437	E 3	15JN1967	4.33343)
(1438	E 5	14JN1967	1.52505)	(1446	A 3	11JL1967	C.01468)	(1447	A 4	11JL1967	C.16373)
(1448	A 6	10JL1967	0.02476)	(1449	C 3	16JL1967	1.73870)	(1450	C 5	16JL1967	1.73284)
(1451	C 7	16JL1967	0.01181)	(1452	E 2	14JL1967	C.27036)	(1453	E 3	15JL1967	2.47706)
(1454	E 5	15JL1967	0.01600)	(1504	A 3	28AU1967	C.00988)	(1508	C 3	2SE1967	C.C1998)
(1509	C 5	2SE1967	0.47441)	(1510	C 7	29AU1967	G.00316)	(1511	E 2	1SE1967	C.42975)
(1512	E 3	1SE1967	1.40851)	(1513	E 5	31AU1967	G.06588)	(1533	A 4	19SE1967	C.CC464)
(1236	E 2	24SE1967	0.02817)	(1537	E 3	24SE1967	4.22669)	(1538	E 5	23SE1967	C.45849)
(1540	C 5	4DC1967	C.00496)	(1541	E 2	11DC1967	C.02129)	(1542	E 3	11DC1967	1.77090)
(1543	E 5	10DC1967	0.01437)	(1377	GS 1	5MY1967	1.01326)	(1378	GS 2	9MY1967	C.24810)
(1379	GS 3	9MY1967	C.36826)	(1380	GS 4	9MY1967	C.28750)	(1381	GS 5	10MY1967	C.25998)
(1382	GS 6	10MY1967	0.66948)	(1383	GS 7	10MY1967	C.15237)	(1384	GS 8	10MY1967	C.47324)
(1385	GS 9	10MY1967	0.00757)	(1386	GS10	12MY1967	C.43955)	(1387	GS11	12MY1967	C.15447)
(1388	GS12	12MY1967	0.64423)	(1389	GS13	12MY1967	C.01289)	(1390	GS14	12MY1967	C.04698)
(1391	GS15	12MY1967	0.16760)	(1392	GS16	12MY1967	C.05548)	(1393	GS17	13MY1967	C.04931)
(1394	GS18	13MY1967	0.60226)	(1395	GS19	13MY1967	C.09864)	(1396	GS20	13MY1967	C.0C592)
(1397	GS21	13MY1967	0.00525)	(1555	GS22	14MY1967	C.19431)	(1554	GS 1	3DC1967	C.01423)
(1555	GS 2	3DC1967	C.00706)	(1557	GS 4	3DC1967	C.01121)	(1558	GS 5	4DC1967	C.0C396)
(1559	GS 7	4DC1967	0.01395)	(1562	GS10	5DC1967	C.00493)	(1563	GS11	5DC1967	C.0C701)
(1566	GS14	9DC1967	0.00182)	(1567	GS15	5DC1967	C.07780)	(1568	GS16	5DC1967	C.C1154)
(1569	GS17	5DC1967	0.58865)	(1570	GS18	5DC1967	C.33717)	(1571	GS19	6DC1967	C.0C351)
(1572	GS20	6DC1967	0.00180)	(1573	GS21	6DC1967	C.03520)	(1574	GS22	6DC1967	C.C1436)
(1575	GS23	6DC1967	0.01677)	(1544	ML 1	2DC1967	C.30477)	(1546	AU 1	2DC1967	C.C7503)
(1526	MU 1	18SE1967	0.02357)	(1521	SP 1	18SE1967	C.01731)	(1526	MO 1	20SE1967	C.C4551)
(1527	TR 1	20SE1967	0.08624)	(1528	SP 1	20SE1967	C.05775)	(1529	KW 1	20SE1967	C.02398)
(1545	ML 2	2DC1967	0.26786)	(1548	CA 1	3DC1967	C.01272)	(1551	ES 1	5DC1967	C.0C799)
(1552	SM 1	6DC1967	0.00860)	(1550	MM 1	5DC1967	C.06195)	(1553	SG 1	6DC1967	C.03672)
(1428	MO 2	29MY1967	0.04621)	(1426	MS 2	29MY1967	C.88189)	(1351	PI 2	21AP1967	C.2C171)
(1427	LO 2	29MY1967	3.48668)	(1417	MO 2	22MY1967	C.22432)	(1418	SM 2	22MY1967	C.04088)
(1350	BM 2	19AP1967	0.01548)	(1425	PA 2	29MY1967	C.22102)	(1359	PM 2	5MY1967	C.42845)
(1401	ML 2	6MY1967	0.28222)	(1402	TR 2	6MY1967	C.34113)	(1400	SB 2	6MY1967	C.75054)
(1352	KW 2	21AP1967	0.16596)	(1353	PP 2	23AP1967	C.21097)	(1354	CP 2	25AP1967	C.C4163)
(1429	ML 1	29MY1967	0.58737)	(1407	CA 2	10MY1967	1.42540)	(1404	MG 2	10MY1967	C.07622)
(1405	ES 2	12MY1967	0.24195)	(1403	SP 2	14MY1967	C.04777)	(1349	CI 2	19AP1967	C.0467C)
(1406	DM 2	13MY1967	0.00270)	(1415	BC 2	23MY1967	C.16477)	(1420	IM 2	23MY1967	C.09063)
(1421	CM 2	23MY1967	0.26025)	(1422	GA 2	23MY1967	C.19414)	(1423	WA 2	25MY1967	C.35970)
(1424	KN 2	25MY1967	0.26645)	(1430	MC 2	12JN1967	C.02467)				

Species *Inoertae sedis*

Stephanodiscus sp. #5.

666 SISPECIE TET NO OF STATIONS 139

146917	CM	12JA1966	C.00028)	146915	CM	20FE1966	C.03414)	146914	CM	19AP1966	C.CC961)
146929	CM	12MY1966	C.00071)	146923	CM	22NO1966	C.00437)	146909	CM	MR1967	C.18669)
146918	CM	4MY1967	C.CC102)	146930	CM	MY1967	C.02057)	146919	CM	5JN1967	C.CC455)
146922	CM	21AU1967	C.00048)	146755	EV	5JN1967	C.00357)	146756	EV	27AP1938	C.0C672)
146761	EV	27MY1938	C.00549)	1223	M 4	18MY1964	C.00156)	1224	B 4	18MY1964	C.CC588)
1225	C 6	15MY1964	C.00392)	1226	D 7	16MY1964	C.00381)	1227	C* 2	13MY1964	C.CC439)
1228	D 2	14MY1964	C.00973)	1229	D 5	14MY1964	C.03595)	1230	E 2	16MY1964	C.C4149)
1231	E 2	16MY1964	C.01712)	1232	E 5	16MY1964	C.02261)	1233	B 3	5JN2964	C.C4287)
1234	B 3	18JN1964	C.00843)	1235	C 7	18JN1964	C.00847)	1439	B 6	5JN1964	C.34965)
1240	D* 1	8JN1964	C.00350)	1247	D* 2	8JN1964	C.15210)	1238	D 3	11JN1964	C.C6400)
1236	D 4	11JN1964	C.00116)	1240	D 6	10JN1964	C.01994)	1241	E 2	13JN1964	C.1C961)
1242	E 2	13JN1964	C.00300)	1243	E 6	13JN1964	C.02297)	1244	F 1	11JN1964	C.CC436)
1245	F 2	11JN1964	C.02420)	1246	F 5	11JN1964	C.05379)	1248	B 3	24JL1964	C.0C591)
1440	M 6	11JL1964	C.45849)	1441	M 6	24JL1964	C.20705)	1249	C 3	8JL1964	C.00272)
1250	D 6	10JL1964	C.00065)	1251	C 7	16JL1964	C.00579)	1252	C* 1	16JL1964	C.0C837)
1253	D* 2	16JL1964	C.02054)	1254	C 2	15JL1964	C.29496)	1255	D 5	15JL1964	C.25764)
1256	D 2	14JL1964	C.51293)	1257	C 3	14JL1964	C.17705)	1258	F 1	6JL1964	C.05899)
1259	F 2	6JL1964	C.04606)	1260	F 3	6JL1964	C.03438)	1261	B 3	2AU1964	C.CC392)
1262	M 1	17AU1964	C.00630)	1442	M 6	2AU1964	C.09894)	1443	B 6	16AU1964	C.CC395)
1264	D* 2	16AU1964	C.00772)	1265	D* 3	10AU1964	C.00894)	1266	D 3	18AU1964	C.45250)
1268	E 2	15AU1964	C.70030)	1269	E 3	15AU1964	C.34534)	1270	F 1	10AU1964	C.CC817)
1444	G 6	19SE1964	C.00303)	1273	D* 2	10SE1964	C.00938)	1275	D 2	17SE1964	C.0C645)
1277	D 4	18SE1964	C.01239)	1279	E 3	16SE1964	C.01178)	1280	E 2	16SE1964	C.CC681)
1281	E 3	16SE1964	C.00789)	1283	E 5	16SE1964	C.00613)	1285	F 1	15SE1964	C.01747)
1294	D 3	15CC1964	C.00330)	1295	D 4	15CC1964	C.01784)	1297	D 6	14CC1964	C.CC190)
1299	E 2	12DC1964	C.00628)	1300	E 3	13CC1964	C.01432)	1301	E 4	13DC1964	C.C1325)
1302	E 5	13CC1964	C.00405)	1305	F 2	11DC1964	C.00345)	1307	B 6	NC1964	C.CC361)
1318	E 2	7NO1964	C.00951)	1319	E 3	7NO1964	C.01047)	1320	E 4	7NO1964	C.CC827)
1336	C 3	27JA1967	C.00193)	1337	C 3	2MR1967	C.00441)	1338	C 3	28MR1967	C.C1851)
1339	C 5	28MR1967	C.00935)	1340	C 7	28MR1967	C.00509)	1341	A 3	19AP1967	C.0C976)
1342	A 4	19AP1967	C.0C361)	1343	A 6	19AP1967	C.00278)	1345	C 5	25AP1967	C.00780)
1346	C 7	21AP1967	C.05608)	1347	E 2	23AP1967	C.00488)	1348	E 5	23AP1967	C.CC548)
1369	A 4	4MY1967	C.00373)	1373	C 7	5MY1967	C.00285)	1374	E 2	7MY1967	C.0C897)
1408	A 3	23MY1967	C.00894)	1412	C 5	31MY1967	C.00842)	1432	A 4	13JN1967	C.CC511)
1433	C 3	17JN1967	C.07105)	1434	C 5	17JN1967	C.00299)	1438	E 5	14JN1967	C.0C363)
1446	A 3	11JL1967	C.00489)	1447	A 4	11JL1967	C.00468)	1449	C 3	16JL1967	C.34774)
1450	C 5	16JL1967	C.02666)	1452	E 2	14JL1967	C.03193)	1453	E 3	15JL1967	C.04297)
1454	E 5	15JL1967	C.00400)	1511	E 2	1SE1967	C.C1842)	1512	E 3	1SE1967	C.01178)
1513	E 5	31AU1967	C.00507)	1536	E 2	24SE1967	C.00273)	1537	E 3	24SE1967	C.01294)
1538	E 5	23SE1967	C.01105)	1542	E 3	11DC1967	C.04068)	1378	GS 2	9MY1967	C.CC421)
1379	GS 3	9MY1967	C.00309)	1383	GS 7	10MY1967	C.00267)	1384	GS 8	10MY1967	C.CC370)
1386	GS10	12MY1967	C.00287)	1387	GS11	12MY1967	C.00396)	1389	GS13	12MY1967	C.CC258)
1392	GS16	12MY1967	C.00308)	1398	GS22	14MY1967	C.00304)	1524	PI 1	20SE1967	C.02189)
1522	BM 1	18SE1967	1.16701)	1549	ML 1	4DC1967	C.01370)	1400	SB 2	6MY1967	C.CC596)
1352	KW 2	21AP1967	C.09449)	1429	ML 2	29MY1967	C.01062)	1423	WA 2	25MY1967	C.02141)

Stephanodiscus sp. #10.

649 STSPECCJ TCT NO OF STATICNS 22

146914	CH		19AP1946	0.01708	146924	CH		10MY1946	0.00494	146923	CH		22NO1946	0.00656
146909	CH		MR1947	0.00911	146906	CH		MY1947	0.01327	146915	CH		5JN1947	0.01214
146758	EV		5JN1937	0.00713	146743	EV		20JN1937	0.01285	146757	EV		25JL1937	0.00963
146750	EV		24SE1937	0.00471	1255	D	5	15JL1964	0.00513	1256	E	2	14JL1964	0.00733
1257	E	3	14JL1964	0.00957	1258	F	1	6JL1964	0.00472	1259	F	2	6JL1964	0.00310
1260	F	3	6JL1964	0.00191	1284	E	6	17SE1964	0.00318	1337	C	3	2MR1967	0.00294
1347	E	2	23AP1967	0.00325	1436	E	2	15JN1967	0.00362	1453	E	3	15JL1967	0.01264
1541	E	2	11OC1967	0.02661										

650 STSPECCK TCT NO OF STATICNS 2

146507	CH		JL1947	0.00197	1250	E	6	10JL1964	0.00411				

Genus *Surirella* Turp.

Turpin, Mem. Mus. Hist. Nat. (Paris), 16:361. 1828.

Although the majority of freshwater members of the genus *Surirella* find their primary habitat in benthic communities, many are successful facultative planktonts. Plankton collections from Lake Michigan, especially those from nearshore areas, often contain representatives of the genus, usually in low numbers.

Surirella angusta Kütz.

Surirella angusta Kützing, Bacill., p. 61, pl. 30, fig. 52. 1844.

651 SWANGUST TCT NO OF STATICNS 162

160973	CH		1876	0.11809	3540	CH		11MY1879	0.02796	3507	CH		19FE1881	0.04528
146921	CH		23NO1945	0.00776	146917	CH		12JA1946	0.00749	146915	CH		20FE1946	0.01138
146914	CH		19AP1946	0.04698	146924	CH		10MY1946	0.02540	146923	CH		22NO1946	0.01311
146920	CH		20DE1946	0.01109	146905	CH		JA1947	0.01716	146909	CH		MR1947	0.06375
146916	CH		9MY1947	0.01492	146906	CH		MY1947	0.02920	146919	CH		5JN1947	0.03945
146907	CH		JL1947	0.01085	146922	CH		21AU1947	0.02666	146758	EV		5JN1937	0.15970
146771	EV		11JN1937	0.01426	146743	EV		20JN1937	0.12846	146745	EV		3JL1937	0.02090
146770	EV		9JL1937	0.01785	146764	EV		17JL1937	0.32232	146757	EV		25JL1937	0.03370
146747	EV		1AU1937	0.15348	146763	EV		23AU1937	0.04058	146765	EV		30AU1937	0.00558
146750	EV		24SE1937	0.01885	146744	EV		6OC1937	0.01463	146748	EV		13OC1937	0.02135
146749	EV		12NO1938	0.01214	146762	EV		18MR1938	0.02206	146772	EV		18AP1938	0.00710
146756	EV		27AP1938	0.00672	146761	EV		27MY1938	0.01908	146766	EV		14DE1938	0.01584
1223	B	3	18MY1964	0.01096	1224	B	4	18MY1964	0.00980	1225	C	6	19MY1964	0.00392
1226	C	7	18MY1964	0.01142	1227	C'	2	13MY1964	0.00658	1228	D	2	14MY1964	0.00779
1229	D	5	14MY1964	0.01692	1230	E	2	18MY1964	0.00889	1231	E	3	18MY1964	0.01582
1232	E	5	18MY1964	0.00805	1233	B	3	5JN2964	0.01191	1234	B	3	18JN1964	0.00281
1235	A	6	5JN1964	0.00999	1236	C'	1	8JN1964	0.00175	1237	C'	2	8JN1964	0.00516
1238	D	3	11JN1964	0.01600	1239	D	4	11JN1964	0.00116	1240	D	6	10JN1964	0.02301
1241	E	2	13JN1964	0.01183	1242	E	3	13JN1964	0.01049	1243	E	6	13JN1964	0.01253
1244	F	1	11JN1964	0.04934	1245	F	2	11JN1964	0.02786	1246	F	3	11JN1964	0.07769
1254	D	2	15JL1964	0.00958	1256	E	2	14JL1964	0.00916	1257	E	3	14JL1964	0.01196
1258	F	1	6JL1964	0.00472	1260	F	3	6JL1964	0.00573	1267	D	6	18AU1964	0.00216
1269	F	3	15AU1964	0.00548	1444	B	6	19SE1964	0.00303	1271	C	7	22SE1964	0.00653
1280	F	2	16SE1964	0.00681	1285	F	1	15SE1964	0.01165	1257	D	6	14OC1964	0.00190
1298	E	1	12OC1964	0.00269	1299	E	2	12OC1964	0.00314	1300	E	3	13OC1964	0.01432
1302	F	5	13OC1964	0.00405	1303	E	6	13OC1964	0.00560	1304	F	1	11OC1964	0.00988
1305	F	2	11OC1964	0.00518	1308	C	7	6NO1964	0.00304	1311	D	1	8NO1964	0.00258
1317	E	1	6NO1964	0.00191	1322	E	6	7NO1964	0.00333	1336	C	3	27JA1967	0.00193
1337	C	3	2MR1967	0.00294	1338	C	3	28MR1967	0.00926	1339	C	5	28MR1967	0.04677
1340	C	7	28MR1967	0.00436	1341	A	3	19AP1967	0.01627	1342	A	4	19AP1967	0.00180
1343	A	6	19AP1967	0.01251	1344	C	3	25AP1967	0.00496	1345	C	5	25AP1967	0.01754
1346	C	7	21AP1967	0.01202	1347	E	2	23AP1967	0.00488	1348	E	5	23AP1967	0.01234
1368	A	3	4MY1967	0.01571	1369	A	4	4MY1967	0.01118	1370	A	6	3MY1967	0.04143
1371	C	3	4MY1967	0.00923	1372	C	5	5MY1967	0.03901	1374	E	2	7MY1967	0.01494
1375	E	3	7MY1967	0.04331	1376	E	5	6MY1967	0.01687	1410	A	6	24MY1967	0.01128
1412	C	5	31MY1967	0.01263	1415	E	3	28MY1967	0.00225	1435	C	7	13JN1967	0.00316
1436	E	2	15JN1967	0.00362	1532	A	3	18SE1967	0.00329	1537	E	3	24SE1967	0.00431
1379	GS	3	9MY1967	0.00619	1380	GS	4	9MY1967	0.00336	1381	GS	5	10MY1967	0.00477
1382	GS	6	10MY1967	0.00555	1383	GS	7	10MY1967	0.00802	1384	GS	8	10MY1967	0.00739
1385	GS	9	10MY1967	0.00471	1386	GS10		12MY1967	0.00575	1387	GS11		12MY1967	0.01188
1388	GS12		12MY1967	0.01207	1390	GS14		12MY1967	0.02936	1391	GS15		12MY1967	0.00479
1393	GS17		13MY1967	0.00274	1394	GS18		13MY1967	0.00516	1397	GS21		13MY1967	0.00065
1398	GS22		14MY1967	0.00304	1558	GS	5	4OC1967	0.00396	1567	CS15		5OC1967	0.00159
1574	GS22		6OC1967	0.00288	1546	LU	1	2OC1967	0.00500	1523	RA	1	19SE1967	0.00923
1526	MD	1	20SE1967	0.02845	1527	TR	1	20SE1967	0.05660	1528	SB	1	20SE1967	0.01444
1529	KW	1	20SE1967	0.01199	1545	WL	1	2OC1967	0.04730	1550	PR	1	5OC1967	0.02478
1428	MU	2	29MY1967	0.01205	1426	MS	2	25MY1967	0.01050	1351	PI	2	21AP1967	0.03103
1427	LU	2	29MY1967	0.01211	1417	MC	2	22MY1967	0.04486	1350	BM	2	19AP1967	0.00441
1425	RA	2	25MY1967	0.02652	1359	PW	2	5MY1967	0.02720	1401	MO	2	6MY1967	0.11759
1402	TR	2	6MY1967	0.18952	1400	SB	2	6MY1967	0.17870	1352	KW	2	21AP1967	0.02577
1353	FR	2	23AP1967	0.02110	1354	GH	2	25AP1967	0.03107	1403	CA	2	10MY1967	0.05231
1407	SM	2	14MY1967	0.01791	1349	CI	2	19AP1967	0.04670	1406	CB	2	13MY1967	0.01348
1419	BU	2	23MY1967	0.05492	1420	IH	2	23MY1967	0.01511	1421	CH	2	23MY1967	0.06940
1422	GA	2	23MY1967	0.16349	1423	WA	2	25MY1967	0.08992	1424	KA	2	25MY1967	0.02665

Surirella biseriata Bréb. and Godey

Surirella biseriata de Brébisson and Godey, Mem. Soc. Acad. Falaise, 1:53, pl. 7. 1835.

Coll: 1552a.

Surirella biseriata var. *bifrons* (Ehr.) Hust.

Navicula bifrons Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1832:259. 1832.
Surirella bifrons (Ehr.) Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:388, pl. 3(5), fig. 5. 1843.
Surirella biseriata var. *bifrons* Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 433, fig. 833. 1930.

652 SUBISEVB TOT NO OF STATIONS 3

(60973	CH	1876	0.02362)	(3541	CH	1FE1881	0.02935)	(1565	GS13	5OC1967	0.00507)

Surirella elegans Ehr.

Surirella elegans Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:424. 1843.

Coll: 1407a.

Surirella guatemalensis Ehr.

Surirella guatemalensis Ehrenberg, Mikrogeologie, pl. 33(6), fig. 7. 1854.

Coll: 1552a.

Surirella linearis Wm. Smith

Surirella linearis Wm. Smith, Syn. British Diat., Vol. 1, p. 31, pl. 8, fig. 58z. 1853.

660 SUSPECCA TOT NO OF STATIONS 1

(1407	SM 2	14MY1967	0.00597)	(	

Surirella linearis var. *constricta* (Ehr.) Grun.

Navicula ? constricta Ehrenberg, Infusionsthierchen, p. 188, pl. 21, fig. 17. 1838.
Surirella constricta (Ehr.) Ehrenberg, Mikrogeologie, pl. 14, fig. 37. 1854.
Surirella linearis var. *constricta* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:455. 1862.

653 SULINEVC TOT NO OF STATIONS 1

(1279	E 1	15SE1964	0.00393)	(	

Surirella linearis var. *helvetica* (Brun) Meist.

Surirella helvetica Brun, Diat. Alpes et Jura, p. 100, pl. 2, fig. 4. 1880.
Surirella linearis var. *helvetica* (Brun) Meister, Beitr. Kryptog.-Fl. Schweiz, 4(1):223, pl. 41, fig. 6. 1913.

654 SULINEVH TOT NO OF STATIONS 7

(3541	CH	1FE1881	0.00578)	(46521	CH	23NC1945	0.00065)	(46906	CH	MY1947	0.00133)
(46922	CH	21AU1947	0.00048)	(1346	C 7	21AP1967	0.00134)	(1388	GS12	12MY1967	0.00603)
(1407	SM 2	14MY1967	0.00597)	(							

Surirella ovata Kütz.

Surirella ovata Kützing, Bacill., p. 62, pl. 7, figs. 1-4. 1844.

655 SUOVATA TCT NC CF STATIONS 64

146921	CH		23AG1945	0.00388	146917	CH		12JA1946	0.00194	146915	CH		20FE1946	0.00569
146914	CH		19AP1946	0.04698	146924	CH		10MY1946	0.00282	146923	CH		22NO1946	0.00437
146920	CH		20DE1946	0.00154	146905	CH		JA1947	0.00613	146909	CH		MR1947	0.07741
146912	CH		AP1947	0.02300	146906	CH		MY1947	0.00398	146919	CH		5JN1947	0.00455
146907	CH		JL1947	0.00690	146922	CH		21AU1947	0.00145	146758	EV		5JN1937	0.00357
146764	EV		17JL1937	0.02417	146744	EV		6DC1937	0.00488	1226	C	7	16MY1964	0.00381
1228	D	2	14MY1964	0.00195	1231	E	3	16MY1964	0.00245	1232	E	5	16MY1964	0.01044
1238	D	3	11JN1964	0.00200	1240	D	6	10JN1964	0.00307	1242	E	3	13JN1964	0.00150
1244	F	1	11JN1964	0.00119	1249	F	2	11JN1964	0.00346	1246	F	3	11JN1964	0.00598
1252	C*	1	16JL1964	0.00277	1256	E	2	14JL1964	0.00183	1257	E	3	14JL1964	0.00239
1258	F	1	6JL1964	0.00236	1259	F	2	6JL1964	0.00310	1268	E	2	15AU1964	0.00547
1272	C*	1	10SE1964	0.00410	1285	F	1	15SE1964	0.00582	1300	E	3	13DC1964	0.00358
1341	A	3	19AP1967	0.00108	1343	A	6	19AP1967	0.00069	1346	C	7	21AP1967	0.00134
1371	C	3	4MY1967	0.00462	1375	E	3	7MY1967	0.00241	1413	C	7	25MY1967	0.00316
1416	E	5	26MY1967	0.00219	1436	E	2	15JN1967	0.00724	1512	F	3	15SE1967	0.00393
1382	GS	6	10MY1967	0.00278	1384	GS	8	10MY1967	0.00370	1391	GS	15	14MY1967	0.00479
1522	BH	1	18SE1967	0.00182	1529	KW	1	20SE1967	0.01199	1351	MI	2	21AP1967	0.00310
1427	LU	2	29MY1967	0.01211	1417	MC	2	22MY1967	0.00374	1350	BH	2	15AP1967	0.00981
1425	RA	2	25MY1967	0.01768	1401	MC	2	6MY1967	0.01764	1402	TR	2	6MY1967	0.02707
1400	SB	2	6MY1967	0.01787	1354	GM	2	25AP1967	0.00690	1403	CA	2	10MY1967	0.03923
1404	MC	2	10MY1967	0.01270	1422	GA	2	23MY1967	0.00511	1423	WA	2	25MY1967	0.00856
1429	RN	2	25MY1967	0.02695										

Surirella ovata var. *pinnata* (Wm. Smith) Hust.

Surirella pinnata Wm. Smith, Syn. British Diat., Vol. 1, p. 34, pl. 9, fig. 72. 1853.
Surirella ovata var. *pinnata* (Wm. Smith) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 442, fig. 865. 1930.

656 SLOVATVP TCT NC CF STATIONS 21

3507	CH		15FE1881	0.01132	146906	CH		MY1947	0.00265	146919	CH		5JN1947	0.00455
146907	CH		JL1947	0.00049	146922	CH		21AU1947	0.00048	146758	EV		5JN1937	0.00713
146747	EV		18AU1937	0.00248	146759	EV		19MY1937	0.00338	1232	E	5	16MY1964	0.00174
1236	C*	1	8JN1964	0.00175	1245	F	2	11JN1964	0.00346	1452	E	2	14JL1967	0.00213
1556	GS	3	3DC1967	0.00521	1417	MC	2	22MY1967	0.00374	1350	BH	2	15AP1967	0.00220
1402	TR	2	6MY1967	0.01083	1400	SB	2	6MY1967	0.00596	1354	GM	2	25AP1967	0.00345
1405	ES	2	12MY1967	0.00695	1456	GB	2	13MY1967	0.00809	1423	WA	2	25MY1967	0.00856

Surirella robusta var. *splendida* (Ehr.) V. H.

Navicula ? splendida Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1832:81. 1832.
Surirella splendida (Ehr.) Ehrenberg, Mikrogeologie, pl. 3(2), fig. 17. 1854.
Surirella robusta var. *splendida* (Ehr.) Van Heurck, Syn. Diat. Belgique, p. 187. 1885.

657 SUROBLVS TCT NC CF STATIONS 2

3541	CH		1FE1881	0.00578	3467	SP	2	14MY1967	0.00597					

Surirella tenera var. *nervosa* A. S.

Surirella tenera var. *nervosa* A. Schmidt, Atlas Diat., pl. 23, figs. 15-17. 1875.

Coll: #844.

Surirella tenuissima Hust.

Surirella tenuissima Hustedt *in*: A. Schmidt, Atlas Diat., pl. 299, fig. 15. 1913.

659 SUTENUIS TCT NC CF STATIONS 1

1550	PR	1	5DC1967	0.01239										

Species *incertae sedis*

Surirella sp. #3.

Genus *Synedra* Ehr.

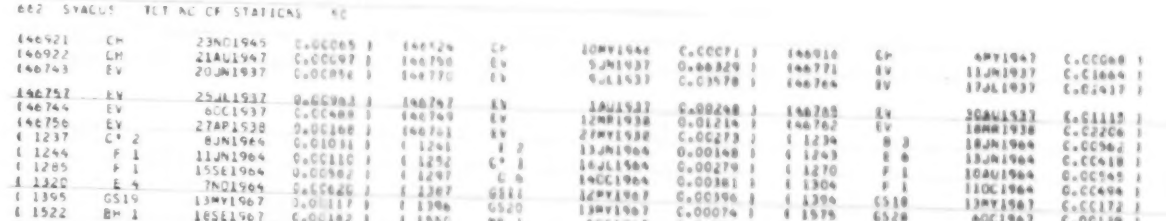
Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1830:40. 1832.

Synedra acus Kützz.

Synedra acus Kützing, Bacill., p. 68, pl. 15, fig. 7. 1844.

Cells in girdle view elongate, rectangular with parallel sides. Specimens from Lake Michigan 90-200μ long, 4-6μ broad at the widest point. Valves lanceolate, gradually tapering to rounded or subcapitate ends. Striae perpendicular to the mid-line of the valve throughout, very finely cross-lineate, about 12-14 in 10μ. Axial area narrow, linear, very slightly expanded in the central portion of the valve. A distinct, quadrate, central area is always present in this species. It lacks any regular ornamentation but occasionally contains what appearsto be incompletely developed striae, especially near the valve margins.

This species is occasional in our collections. Its primary habitat is apparently in the periphyton, but, like many other members of the genus, it is able to maintain its existence in the phytoplankton.

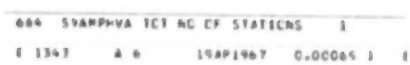


Synedra amphicephala Kützz.

Synedra amphicephala Kützing, Bacill., p. 64, pl. 3, fig. 12. 1844.

Cells in girdle view elongate, sub-rectangular, narrowed toward the ends. Specimens from Lake Michigan 15-50μ long, 2-4μ broad. Valves linear to, especially in the smaller individuals, linear-lanceolate with distinctly protracted sub-capitate to capitate apices. Striae finely structured, very finely cross-lineate, parallel throughout the length of the valve, 13-16 in 10μ. Axial area narrow, slightly lanceolate. Specimens from Lake Michigan lack a central area.

This species apparently finds its primary habitat in the periphyton but is able to exist in the plankton. Most of our specimens come from the northern portion of the lake.



Synedra amphicephala var. *austrica* (Grun.) Hust.

Synedra austrica Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 39, figs. 16a-b. 1881.
Synedra amphicephala var. *austrica* (Grun.) Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)2:206, figs. 696b-d. 1932.

Valves lanceolate with capitate ends. Striae 12-15 in 10µ. Morphology and ornamentation of the frustule otherwise essentially similar to the nominate variety.

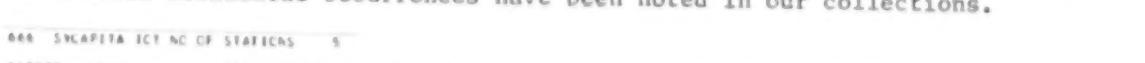
More common than the nominate variety in our collections, this entity apparently is better adapted to planktonic existence.

Synedra capitata Ehr.

Synedra capitata Ehrenberg, Poggendr. Ann. Phys., Ser. 2, 38:221, pl. 3, fig, 3(1). 1836.

Cells in girdle view linear with slightly expanded apices. Specimens from Lake Michigan 150-420µ long, 7-10µ broad. Valves linear with much expanded cuneately narrowed apices. Striae coarse, distinctly punctate-lineate, parallel throughout most of the length of the valve, becoming radiate in the expanded apices, 7-10 in 10µ. Axial area narrow but distinct, linear throughout. Central area often entirely lacking, when present rather small, quadrate, not reaching the margins of the valve. A distinct "jelly pore" is visible at the ends of the valve.

This very distinctive species is restricted to the periphyton and only occasional accidental occurrences have been noted in our collections.



Synedra cyclopum Brutschy

Synedra cyclopum Brutschy, Internat. Rev. Hydrobiol., 10:284, fig. 11. 1922.

Living cells attached at one end, usually to planktonic microcrustaceans. Usually several cells are attached at a common point, forming a bushy colony. Valves arcuate, narrowing to rostrate to sub-capitate ends. Specimens from Lake Michigan 30-65µ long, 3-4µ broad. Striae finely structured, parallel throughout the length of the valve, 14-18 in 10µ. Axial area narrow, linear, often slightly displaced toward the concave margin of the valve. Central area may be either present or absent, when present it is quite small, elliptical in shape and does not extend to the margins of the valve.

The secondarily planktonic, epizoic growth habit of this species appears to be obligate. It is most common on copepods although it is occasionally observed on other zooplankters.

668 SYCYCLCP TCT AC CF STATICNS 2

(1260	F 3	8JL1964	0.00191)	(1568	G516	5DC1967	0.00144)	(			

Synedra delicatissima Wm. Smith

Synedra delicatissima Wm. Smith, Syn. British Diat., vol. 1, pl. 12, fig. 94. 1853.

Cells in girdle view linear, narrowing slightly toward the ends. Valves elongate-lanceolate with rounded to subcapitate ends. Specimens from Lake Michigan 100-335μ long, 3-4μ broad. Striae parallel throughout, 14-16 in 10μ. Axial area narrow, filiform, central area variable, usually elongate-elliptical, not reaching the valve margins, in some specimens much reduced, only marked by a few irregular striae at the center of the valve.

709 SYSPECCH TCT AC CF STATICNS 11

146918	CH	4MY1947	C.CCC34)	146919	CH	5JN1947	2.36719)	146922	CH	21AU1947	C.CC145)
146744	EV	8DC1937	C.CC488)	(1244	F 1	11JN1964	0.00219)	(1248	F 3	11JN1964	C.C1195)
(1270	F 1	10AL1964	C.CC817)	(1348	E 5	23AP1967	0.00137)	(1426	PS 2	29MY1967	C.C1C50)
(1450	BH 2	19AP1967	0.00681)	(1463	CB 2	10MY1967	0.02815)	(			

Synedra delicatissima var. *angustissima* Grun.

Synedra delicatissima var. *angustissima* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 39, fig. 10. 1881.
Synedra acus var. *angustissima* (Grun.) Van Heurck, Syn. Diat. Belgique, p. 151. 1885.

Cells in girdle view linear, narrowed toward the ends. Valves elongate-lanceolate with subcapitate ends. Specimens from Lake Michigan 200-380μ long, 4-5μ broad. Striae parallel throughout, 12-14 in 10μ. Axial area narrow, filiform, central area elongate, rectangular, usually reaching the margins of the valves. In some specimens the central area is irregularly bordered and tends to become more or less elliptical.

Both of these entities are euplanktonic in Lake Michigan. As is true of most members of the genus, certain morphologic characteristics, particularly the form of the central area, tends to be variable. Isolated specimens in the intermediate size range are difficult to distinguish, but large populations appear to fall into two discrete series.

663 SYACLSVA TCT AC CF STATICNS 315

160973	CH	1870	C.51960)	(3540	CH	11MY1875	0.07921)	(3541	CH	1FE1881	C.35127)
(3507	CH	19FE1881	0.14716)	146910	CH	DC1965	1.13602)	146921	CH	23NO1965	0.27356)
146908	CH	CE1965	0.09063)	146517	CH	12JA1966	0.21625)	146915	CH	20FE1966	C.3C729)
146914	CH	19AP1966	0.10037)	146524	CH	10MY1966	0.89381)	146923	CH	22NO1966	0.78026)
146920	CH	20DE1966	0.20027)	146505	CH	JA1967	C.06128)	146909	CH	MR1967	C.12750)
146912	CH	AP1967	1.03484)	146516	CH	4MY1967	1.32323)	146906	CH	MY1967	2.37270)
146919	CH	5JN1967	0.69043)	146513	CH	6AU1967	C.16735)	146922	CH	21AU1967	C.18901)
146758	EV	5JN1937	0.39940)	146771	EV	11JN1937	0.57536)	146743	EV	20JN1937	C.C6851)
146745	EV	3JL1937	0.27168)	146770	EV	9JL1937	0.02982)	146764	EV	17JL1937	C.16116)
146757	EV	25JL1937	0.24553)	146747	EV	1AU1937	0.55450)	146763	EV	23AU1937	C.14205)
146765	EV	30AU1937	0.22305)	146769	EV	7SE1937	0.56277)	146752	EV	15SE1937	C.C6530)
146760	EV	22SE1937	0.27574)	146750	EV	24SE1937	0.19324)	146744	EV	6DC1937	C.44820)
146748	EV	13DC1937	0.02155)	146767	EV	27DC1937	0.10444)	146768	EV	16MR1938	C.23519)
146762	EV	18MR1938	0.72783)	146751	EV	30MR1938	0.10049)	146772	EV	18AP1938	C.12C65)
146756	EV	27AP1938	0.20485)	146759	EV	19MY1938	0.37812)	146761	EV	27MY1938	0.56143)
146766	EV	14DE1938	0.2C596)	(1223	B 3	18MY1964	C.28440)	(1224	B 4	18MY1964	C.45878)
(1225	C 6	15MY1964	1.92081)	(1226	C 7	18MY1964	2.92998)	(1227	C' 2	13MY1964	C.42220)
(1228	D 2	14MY1964	1.36242)	(1225	B 5	14MY1964	2.96039)	(1230	E 2	18MY1964	1.86694)

1231	E 3	16MY1964	2.62694	1232	E 5	16MY1964	1.70441	1233	B 3	5JN2964	C.22386
1234	B 3	18JN1964	0.17431	1235	C 7	16JN1964	C.16663	1439	B 6	5JN1964	1.C3496
1236	C* 1	8JN1964	0.30631	1237	C* 2	8JN1964	C.20624	1238	D 3	11JN1964	1.56000
1239	D 4	11JN1964	0.17871	1240	D 6	10JN1964	0.71482	1241	E 2	13JN1964	1.24198
1242	E 3	13JN1964	1.39975	1243	E 6	13JN1964	2.63092	1244	F 1	11JN1964	0.1677e
1245	F 2	11JN1964	0.59125	1246	F 3	11JN1964	0.92034	1247	B 3	14JL1964	0.C2561
1248	B 3	24JL1964	0.09517	1440	B 6	11JL1964	C.28375	1441	B 6	24JL1964	0.46257
1249	C 3	8JL1964	0.09975	1250	C e	10JL1964	0.25899	1251	C 7	16JL1964	0.22307
1252	C* 1	16JL1964	0.04184	1253	C* 2	16JL1964	C.37657	1254	D 2	15JL1964	0.48449
1255	D 5	15JL1964	0.23099	1256	E 2	14JL1964	C.85367	1257	E 3	14JL1964	1.11497
1258	F 1	6JL1964	0.90851	1259	F 2	6JL1964	1.C8453	1260	F 3	6JL1964	1.51078
1261	B 3	2AU1964	0.00785	1262	B 3	17AU1964	C.01670	1442	B 6	2AU1964	0.28659
1443	B 6	10AU1964	0.01186	1263	C 7	15AU1964	C.00400	1264	C* 1	1CAU1964	0.C2124
1265	C* 2	1CAU1964	0.07501	1266	D 3	18AU1964	0.44549	1267	D 6	.8AU1964	0.C1946
1268	E 2	15AU1964	1.05318	1269	E 3	15AU1964	C.29600	1270	F 1	10AU1964	0.CE441
1444	B 6	19SE1964	0.21619	1271	C 7	22SE1964	C.01306	1272	C* 1	10SE1964	0.00821
1273	C* 2	1CSE1964	0.C6990	1274	D 1	17SE1964	C.06100	1275	D 2	17SE1964	0.11612
1276	D 3	18SE1964	1.13992	1277	D 4	18SE1964	C.09295	1278	D 6	18SE1964	0.53807
1279	E 1	16SE1964	0.20811	1280	E 2	16SE1964	C.37443	1281	E 3	16SE1964	0.29039
1282	E 4	16SE1964	0.22161	1283	E 5	16SE1964	0.77847	1284	E 6	17SE1964	1.22327
1285	F 1	15SE1964	2.44598	1286	F 2	15SE1964	1.C2890	1287	F 3	15SE1964	0.70056
1288	B 3	15DC1964	0.02177	1445	B 6	14DC1964	C.20548	1289	C 7	14DC1964	0.27703
1290	C* 1	16DC1964	0.C7580	1291	C* 2	16DC1964	C.01488	1292	D 1	15DC1964	0.C1491
1293	D 2	15DC1964	0.12735	1294	D 3	15DC1964	C.53071	1295	D 4	15DC1964	0.1C703
1296	D 5	14DC1964	0.05902	1297	D 6	14DC1964	C.29990	1298	E 1	12DC1964	0.19657
1299	E 2	12DC1964	0.26076	1300	E 3	13DC1964	2.00465	1301	E 4	13DC1964	0.74185
1302	E 5	13DC1964	1.41712	1303	E e	13DC1964	0.78361	1304	F 1	11DC1964	0.43218
1305	F 2	11DC1964	0.28983	1306	F 3	11DC1964	1.18414	1307	B 6	NC1964	0.C5C51
1308	C 7	6NC1964	0.02737	1309	C* 1	10ND1964	C.20421	1310	C* 2	10NC1964	0.29252
1311	D 1	5NC1964	0.23477	1312	D 2	8NC1964	C.13C37	1313	D 3	5NC1964	0.16988
1314	D 4	9NC1964	0.0717e	1315	D 5	9NC1964	C.5?780	1316	D e	9NC1964	1.C5772
1317	E 1	6NC1964	0.12403	1318	E 2	7NC1964	C.22639	1319	E 3	7NC1964	0.75596
1320	E 4	7NC1964	0.86007	1321	E 5	7NC1964	1.65358	1322	E e	7NC1964	1.51e31
1323	F 1	6NC1964	0.64968	1324	F 2	6NC1964	C.97827	1325	F 3	6NC1964	1.41C61
1326	C 3	27JA1967	0.07345	1327	C 3	2MR1967	2.91309	1328	C 3	28MR1967	2.48222
1329	C 5	28MR1967	0.19245	1340	C 7	28MR1967	1.59542	1341	A 2	15AP1967	1.21497
1342	A 4	19AP1967	1.28443	1343	A e	19AP1967	C.24316	1344	C 3	25AP1967	2.C8454
1345	C 5	25AP1967	0.44785	1346	C 7	21AP1967	4.09111	1347	E 2	23AP1967	3.C2390
1348	E 5	23AP1967	0.36620	1348	A 3	4MY1967	0.95853	1349	A 4	4MY1967	0.1C436
1370	A e	3MY1967	0.00230	1371	C 3	4MY1967	C.07849	1372	C 5	5MY1967	1.24131
1373	C 7	5MY1967	0.44917	1374	E 3	7MY1967	3.76564	1375	E 3	7MY1967	C.78443
1376	E 5	8MY1967	0.16114	1408	A 3	23MY1967	2.92447	1409	A 4	23MY1967	4.83643
1410	A e	24MY1967	1.15742	1411	C 3	31MY1967	4.44123	1412	C 5	31MY1967	2.55072
1413	C 7	25MY1967	2.49008	1414	E 4	28MY1967	3.44584	1415	E 3	28MY1967	2.30697
1416	E 5	29MY1967	2.49587	1431	A 3	12JN1967	3.36277	1432	A 4	13JN1967	3.63339
1433	A e	17JN1967	0.13848	1434	C 5	17JN1967	2.93C67	1435	C 7	13JN1967	0.16824
1436	E 2	15JN1967	0.41918	1437	E 3	15JN1967	4.77485	1438	E 5	14JN1967	1.65208
1446	A 3	14JL1967	1.79417	1447	A 4	11JL1967	2.39989	1448	A e	10JL1967	C.45514
1449	C 3	16JL1967	12.12885	1450	C 5	16JL1967	4.79863	1451	C 7	16JL1967	1.46845
1452	E 2	16JL1967	3.77658	1453	E 3	15JL1967	4.00880	1454	E 5	15JL1967	0.35007
1504	A 3	28AU1967	0.69127	1505	A 4	28AU1967	0.23169	1506	A e	29AU1967	0.00523
1509	C 5	30E1967	2.35167	1510	C 7	29AU1967	C.44462	1511	E 4	1SE1967	1.88C21
1512	E 5	1SE1967	2.69566	1513	E 5	31AU1967	3.31408	1532	A 3	18SE1967	C.04599
1533	A 4	19SE1967	0.21857	1534	A e	19SE1967	C.10859	1535	C 7	20SE1967	0.C1288
1536	E 4	24SE1967	3.81746	1537	E 3	24SE1967	4.42508	1538	E 5	23SE1967	2.32006
1539	C 3	4CC1967	0.00953	1540	C 5	4CC1967	C.01489	1541	E 2	11CC1967	0.48205
1542	E 3	11CC1967	2.61391	1543	E 5	10CC1967	C.63209	1377	GS 1	5MY1967	0.16228
1378	GS 2	9MY1967	0.55875	1379	GS 4	9MY1967	C.46732	1380	GS 4	5MY1967	2.66685
1381	GS 5	10MY1967	2.11325	1382	GS 6	10MY1967	C.12380	1383	GS 7	10MY1967	1.21632
1384	GS 8	10MY1967	1.12725	1385	GS 9	10MY1967	1.04722	1386	GS10	12MY1967	0.25280
1387	GS11	12MY1967	0.47136	1388	GS12	12MY1967	0.09430	1389	GS13	12MY1967	0.C9266
1390	GS14	12MY1967	0.15965	1391	GS15	12MY1967	C.57463	1392	GS16	12MY1967	0.75816
1393	GS17	13MY1967	0.70129	1394	GS18	13MY1967	1.68576	1395	GS19	13MY1967	0.27480
1396	GS20	13MY1967	0.06511	1397	GS21	13MY1967	C.13081	1398	GS22	14MY1967	1.55355
1556	GS 1	3LL1967	0.15012	1558	GS 2	3CC1967	C.38489	1558	GS 3	3CC1967	0.07822
1557	GS 4	3LL1967	2.07766	1559	GS 5	4CC1967	C.67747	1559	GS 7	4CC1967	0.52808
1560	GS 8	4CC1967	0.44613	1561	GS 9	4CC1967	1.09174	1562	GS10	5CC1967	0.66078
1563	GS11	5CC1967	0.55886	1564	GS12	5CC1967	C.01152	1565	GS13	5CC1967	0.C3042
1566	GS14	5CC1967	0.10457	1567	GS15	5CC1967	C.18894	1568	GS16	5CC1967	0.67243
1569	GS17	5CC1967	0.40091	1570	GS18	5CC1967	C.12892	1571	GS1.	6CC1967	0.C5151
1572	GS20	6CC1967	0.0C09C	1573	GS21	6CC1967	C.03920	1574	GS22	6CC1967	0.44584
1575	GS23	6CC1967	0.15355	1544	MC 1	20C1967	C.01191	1547	PS 1	20C1967	0.C3194
1546	LO 1	2CC1967	0.03901	1520	MC 1	18SE1967	C.03772	1521	SP 1	18SE1967	0.C6347
1522	MP 1	18SE1967	1.44380	1526	MC 1	20SE1967	0.05120	1527	TR 1	20SE1967	0.C566C
1528	SR 1	20SE1967	0.08863	1529	MM 1	20SE1967	0.14390	1530	FR 1	24SE1967	0.14C01
1531	GM 1	25SE1967	1.06509	1548	CA 1	3CC1967	C.09086	1549	MC 1	4CC1967	1.6C340
1551	ES 1	5CC1967	0.44732	1552	SM 1	6CC1967	C.68689	1550	MR 1	5CC1967	0.15824
1553	SW 1	6CC1967	0.13854	1424	MC 2	25MY1967	C.35253	1426	PS 2	29MY1967	14.85764
1351	MI 2	21AP1967	2.56771	1427	LO 2	29MY1967	6.45278	1417	MO 2	22MY1967	2.23194
1418	SM 2	22MY1967	0.88647	1350	BM 2	19AP1967	1.55C63	1425	MA 2	25MY1967	3.58058
1399	PW 2	5MY1967	3.40724	1401	MO 2	6MY1967	2.06961	1402	TR 2	6MY1967	0.42593
1400	SB 2	6MY1967	3.36550	1392	KN 2	21AP1967	1.92407	1353	FR 2	23AP1967	1.46624
1354	GM 2	25AP1967	0.20199	1429	ML 2	29MY1967	1.58191	1403	CA 2	10MY1967	1.67386
1404	MO 2	10MY1967	1.09248	1405	ES 2	12MY1967	C.85144	1407	SM 2	14MY1967	C.85863
1349	CI 2	19AP1967	0.88009	1406	GB 2	13MY1967	C.07818	1419	BU 2	23MY1967	9.C7140
1420	IM 2	23MY1967	3.70091	1421	GM 2	23MY1967	9.25052	1422	GA 2	23MY1967	2.61585
1423	WA 2	25MY1967	0.36398	1424	KN 2	25MY1967	5.82201	1430	MC 2	12JN1967	C.56281

Synedra demerarae Grun.

Synedra ? demerarae Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 41, fig. 29. 1881.

Cells in girdle view linear, slightly narrowed toward the ends. Cells sometimes attached by the valve faces into short, band-shaped colonies.

Valves lanceolate with capitate ends. Specimens from Lake Michigan 20-90μ long, 2.5-4μ broad. Axial area highly variable, in the smaller individuals wide and more or less lanceolate, in the larger individuals narrow and filiform. Central area entirely lacking in most specimens, in some of the larger individuals marked by a few partially developed striae near the center of the valve. Striae appearing very coarse and well defined 8-12, usually 8-10, in 10μ. One of the most distinctive features of this taxon is the alternate placement of the striae on the two sides of the axial area rather than being opposite one another as is the case in most species of the genus.

The identity of the specimens from Lake Michigan assigned to this taxon is somewhat questionable. The striae are not marginal as in Grunow's original illustration except in the very small individuals. The size range of our specimens is also considerably greater than that reported by other authors (Patrick and Reimer 1966). There is also some question as to the correct generic classification in that our specimens sometimes occur in colonies similar to *Fragilaria*. As has been pointed out by numerous authorities, colony formation is an extremely tenuis taxonomic characteristic in diatoms and a number of the smaller taxa are more or less arbitrarily assigned to either *Synedra* or *Fragilaria* although they may adopt the growth habit "characteristic" of either genus.

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(60973	CH		1876	0.04724)	(3540	CH	11MY1879	0.10716)	(3541	CH		1FE1881	C.1C76C)
(3507	CH		19FE1881	0.20376)	(46910	CH	OC1965	0.00983)	(46921	CH		23NO1945	C.02005)
(46908	CH		DE1945	0.02014)	(46517	CH	12JA1946	0.00943)	(46915	CH		20FE1946	C.C6829)
(46914	CH		19AP1946	0.01281)	(46524	CH	10MY1946	0.05573)	(46923	CH		22NO1946	C.22293)
(46920	CH		20DE1946	0.08011)	(46505	CH	JA1947	C.03922)	(46909	CH		MR1947	C.07286)
(46912	CH		AP1947	0.03449)	(46916	CH	4MY1947	0.00305)	(46906	CH		MY1947	0.01261)
(46919	CH		5JN1947	0.01214)	(46507	CH	JL1947	C.01874)	(46922	CH		21AU1947	C.0C436)
(46758	EV		5JN1937	0.08915)	(46743	EV	20JN1937	0.03426)	(46745	EV		3JL1937	C.02090)
(46770	EV		9JL1937	0.03578)	(46764	EV	17JL1937	0.16116)	(46757	EV		25JL1937	C.01444)
(46747	EV		1AU1937	0.19803)	(46763	EV	23AU1937	C.06088)	(46765	EV		30AU1937	C.0C558)
(46752	EV		15SE1937	0.08707)	(46760	EV	22SE1937	C.33483)	(46750	EV		24SE1937	C.0C943)
(46744	EV		6OC1937	0.02439)	(46767	EV	27OC1937	0.06576)	(46749	EV		12MR1938	C.03641)
(46768	EV		16MR1938	0.C882C)	(46762	EV	18MR1938	0.02206)	(46751	EV		30MR1938	C.03350)
(46772	EV		18AP1938	0.01419)	(46756	EV	27AP1938	0.04533)	(46759	EV		19MY1938	C.0C338)
(46761	EV		27MY1938	0.0C818)	(46766	EV	14DE1938	0.09506)	(1224	B 4		18MY1964	C.C1568)
(1225	C 6		15MY1964	0.01568)	(1227	C* 2	13MY1964	C.00768)	(1228	D 2		14MY1964	C.01557)
(1229	D 5		14MY1964	0.01903)	(1230	E 2	16MY1964	0.00889)	(1231	E 3		16MY1964	C.C2201)
(1232	E 5		16MY1964	0.24349)	(1236	C* 1	8JN1964	C.00700)	(1239	D 4		11JN1964	C.01625)
(1240	D 6		10JN1964	0.00153)	(1241	E 2	13JN1964	0.CC444)	(1242	E 3		13JN1964	C.CC300)
(1243	E 6		13JN1964	0.01462)	(1244	F 1	11JN1964	0.00329)	(1256	E 2		14JL1964	C.0C366)
(1257	E 3		14JL1964	0.00239)	(1258	F 1	6JL1964	0.01888)	(1260	F 3		6JL1964	0.00382)
(1280	E 2		16SE1964	0.0C681)	(1285	F 1	15SE1964	0.02330)	(1292	D 1		15OC1964	C.CC373)
(1297	D 6		14OC1964	0.01523)	(1304	F 1	11OC1964	C.00494)	(1305	F 2		11OC1964	C.00173)
(1306	F 3		11OC1964	0.00277)	(1316	D 6	9NO1964	0.00378)	(1320	E 4		7NO1964	C.CC414)
(1321	E 5		7NO1964	0.00638)	(1322	E 6	7NO1964	C.04666)	(1323	F 1		6NO1964	C.CC139)
(1336	C 3		27JA1967	0.00578)	(1337	C 3	2MR1967	C.04997)	(1338	C 3		28MR1967	C.05256)
(1339	C 5		28MR1967	0.02182)	(1340	C 7	28MR1967	C.06036)	(1341	A 3		19AP1967	C.16706)
(1342	A 4		19AP1967	0.01444)	(1343	A 6	19AP1967	C.01042)	(1344	C 3		25AP1967	C.CC993)
(1345	C 5		25AP1967	0.02924)	(1346	C 7	21AP1967	C.05074)	(1347	E 2		23AP1967	C.C2276)
(1348	E 5		23AP1967	0.19191)	(1368	A 3	4MY1967	C.17279)	(1369	A 4		4MY1967	C.15755)
(1370	A 6		3MY1967	0.17033)	(1371	C 3	4MY1967	0.04155)	(1372	C 5		5MY1967	C.C4611)
(1373	C 7		5MY1967	0.11695)	(1374	E 2	7MY1967	C.C4184)	(1375	E 3		7MY1967	C.19972)
(1376	E 5		6MY1967	C.78705)	(14C8	A 3	23MY1967	0.07602)	(1409	A 4		23MY1967	C.C6546)
(1410	A 6		24MY1967	0.03383)	(1411	C 3	31MY1967	C.28720)	(1412	C 5		31MY1967	C.02105)
(1413	C 7		25MY1967	0.14531)	(1414	E 2	28MY1967	0.01343)	(1415	E 3		28MY1967	C.0C899)
(1416	E 5		28MY1967	0.07654)	(1431	A 3	12JN1967	0.00515)	(1432	A 4		13JN1967	C.C2576)
(1433	C 3		17JN1967	0.01938)	(1434	C 5	17JN1967	C.00897)	(1436	E 2		15JN1967	C.01447)
(1437	E 3		15JN1967	0.0C538)	(1438	E 5	14JN1967	C.06173)	(1450	C 5		16JL1967	C.CC381)
(1453	E 3		15JL1967	0.00758)	(15C6	A 6	29AU1967	0.00523)	(1511	E 2		1SE1967	C.0C307)
(1535	C 7		20SE1967	0.00322)	(1536	E 2	24SE1967	0.00273)	(1538	E 5		23SE1967	C.0C552)
(1377	GS 1		9MY1967	0.02771)	(1378	GS 2	9MY1967	C.34061)	(1379	GS 3		9MY1967	C.25687)
(1380	GS 4		9MY1967	0.15806)	(1381	GS 5	10MY1967	C.25760)	(1382	GS 6		10MY1967	C.13600)
(1383	GS 7		10MY1967	0.04812)	(1384	GS 8	10MY1967	C.02033)	(1385	GS 9		10MY1967	C.04003)
(1386	GS10		12MY1967	0.08905)	(1387	GS11	12MY1967	0.13862)	(1388	GS12		12MY1967	C.C2413)
(1389	GS13		12MY1967	0.01031)	(1390	GS14	12MY1967	C.01762)	(1391	GS15		12MY1967	C.18675)
(1392	GS16		12MY1967	0.04315)	(1393	GS17	13MY1967	C.04657)	(1394	GS18		13MY1967	C.04816)
(1395	GS19		13MY1967	0.00587)	(1358	GS22	14MY1967	0.00911)	(1559	GS 7		4OC1967	C.CC350)
(1560	GS 8		4OC1967	0.00472)	(1561	GS 9	4OC1967	0.00587)	(1574	GS22		6OC1967	C.00288)
(1521	SH 1		18SE1967	C.0C577)	(1526	MC 1	20SE1967	0.01138)	(1529	KW 1		20SE1967	C.01199)
(1351	MI 2		21AP1967	0.00621)	(1417	HO 2	22MY1967	0.00374)	(1402	TR 2		6MY1967	C.C6498)
(1400	SB 2		6MY1967	0.04170)	(1352	KW 2	21AP1967	C.01718)	(1423	WA 2		25MY1967	C.0C856)

Synedra filiformis Grun.

Synedra filiformis Grunow *in*: Cleve and Grunow, Svenska Vet.-Akad. Handl., Ny Följd, 17(2):106, pl. 6, fig. 116. 1880.

Cells in girdle view very narrow, linear, occurring singly or in bushy colonies. Valves elongate-lanceolate with very fine, rounded, ends. Specimens from Lake Michigan 45-195μ long, only 1-2μ broad. The frustule is very lightly silicified and the striae are very fine in structure and difficult to resolve. Striae more or less marginal, parallel throughout the length of the valve, 26-30 in 10μ. Axial area relatively wide, indistinctly bordered. In the specimens from Lake Michigan a central area is entirely lacking.

At the present time the taxonomy of the members of the genus *Synedra* that display extreme adaptations to planktonic existence is extremely confused. Many authors have considered many of these forms to be varieties of *S. acus*. Our observations do not support this view. The species most closely resembling the taxon discussed here are *S. ostenfeldii*, which is distinguished by its somewhat coarser structure and *S. tenera*, which is distinguished by its still finer structure and somewhat smaller size range. *Synedra nana* has been reported from Lake Michigan (Williams and Scott 1962) but their identification was apparently based on descriptions and illustrations published by Hustedt (1931) which in no way resemble the original description and illustration of Meister (1912).

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60973	CH	1876	0.23618	3541	CH	1FE1881	C.00578	46910	CH	CC1945	C.00109
46921	CH	23ND1945	0.02866	46917	CH	12JA1946	0.00194	46915	CH	20FE1946	0.28553
46914	CH	19AP1946	0.01175	46924	CH	10MY1946	0.57354	46923	CH	22ND1946	C.00874
46909	CH	MR1947	0.02277	46912	CH	AP1947	0.02300	46916	CH	4MY1947	C.00543
46906	CH	MY1947	2.67468	46919	CH	5JN1947	C.78906	46907	CH	JL1947	C.16026
46913	CH	6AU1947	0.01046	46522	CH	21AU1947	0.02859	46758	EV	5JN1937	C.79880
46771	EV	11JN1937	1.59764	46743	EV	20JN1937	C.04710	46764	EV	17JL1937	C.01612
46747	EV	1AU1937	0.04703	46765	EV	30AU1937	0.01673	46769	EV	7SE1937	C.02171
46752	EV	15SE1937	0.04354	46760	EV	22SE1937	0.01477	46750	EV	24SE1937	C.12726
46744	EV	6OC1937	0.54623	46748	EV	13OC1937	C.02135	46767	EV	27CC1937	C.37136
46749	EV	12MR1938	0.02427	46768	EV	16MR1938	0.02940	46762	EV	18MR1938	C.26467
46751	EV	30MR1938	0.01117	46772	EV	18AP1938	C.00710	46756	EV	27AP1938	C.02015
46759	EV	19MY1938	0.08440	46761	EV	27MY1938	C.01090	46766	EV	14DE1938	C.09506
1224	B 4	18MY1964	0.CC392	1225	C 6	15MY1964	C.01176	1226	C 7	16MY1964	C.CC761
1227	C* 2	13MY1964	0.00548	1228	D 2	14MY1964	C.C1168	1229	D 5	14MY1964	C.C1692
1230	E 2	16MY1964	0.02963	1231	E 3	16MY1964	C.01712	1232	E 5	16MY1964	C.CC348
1233	B 3	5JN2964	0.C2620	1234	B 3	18JN1964	C.23898	1235	C 7	16JN1964	C.C5649
1439	B 6	5JN1964	3.07692	1236	C* 1	8JN1964	C.C0350	1237	C* 2	8JN1964	C.47693
1238	D 3	11JN1964	C.21000	1239	D 4	11JN1964	C.00580	1240	D 6	10JN1964	C.25452
1241	E 2	13JN1964	C.15968	1242	E 3	13JN1964	C.01499	1243	E 6	13JN1964	C.36541
1244	F 1	11JN1964	0.00658	1245	F 2	11JN1964	C.02766	1248	F 3	11JN1964	C.20917
1247	B 3	14JL1964	C.04695	1248	B 3	24JL1964	0.06897	1440	B 6	11JL1964	9.28621
1441	B 6	24JL1964	4.16309	1249	C 3	8JL1964	0.01358	1250	C 6	10JL1964	3.56712
1251	C 7	16JL1964	0.28681	1252	C* 1	16JL1964	0.01395	1253	C* 2	16JL1964	C.31952
1254	D 2	15JL1964	7.50810	1255	D 5	15JL1964	16.52892	1256	E 2	14JL1964	5.12933
1257	E 3	14JL1964	10.88647	1258	F 1	6JL1964	2.80813	1259	F 2	6JL1964	3.25359
1260	F 3	6JL1964	3.34244	1262	B 3	17AU1964	C.C1260	1442	B 6	2AU1964	C.59707
1443	B 6	16AU1964	0.00988	1263	C 7	15AU1964	0.01201	1264	C* 1	10AU1964	C.CC193
1265	C* 2	1CAU1964	0.01788	1266	D 2	18AU1964	0.17427	1267	D 6	18AU1964	C.00216
1268	E 2	15AU1964	2.29784	1269	E 3	15AU1964	12.27868	1270	F 1	10AU1964	C.00272
1444	B 6	19SE1964	0.0C909	1271	C 7	22SE1964	C.01959	1272	C* 1	10SE1964	C.00821
1273	C* 2	10SE1964	0.02688	1275	D 2	17SE1964	0.05161	1276	D 3	10SE1964	C.06705
1277	D 4	18SE1964	0.04338	1279	E 1	16SE1964	0.03141	1281	E 3	16SE1964	4.94447
1282	E 4	16SE1964	0.05540	1283	E 5	16SE1964	1.07270	1284	E 6	17SE1964	C.01589
1285	F 1	15SE1964	0.01747	1286	F 2	15SE1964	0.C5473	1287	F 3	15SE1964	C.C2502
1288	B 3	15OC1964	0.00653	1445	B 6	14OC1964	0.11742	1289	C 7	14OC1964	C.01319
1290	C* 1	16OC1964	0.01516	1291	C* 2	16OC1964	C.00245	1292	D 1	15OC1964	C.03354
1293	D 2	15OC1964	0.33016	1294	D 3	15OC1964	0.11867	1295	D 4	15OC1964	C.08324
1296	D 5	14OC1964	0.06688	1297	D 6	14OC1964	C.01333	1299	E 2	12OC1964	C.01571
1300	E 3	13OC1964	0.50116	1301	E 4	13OC1964	0.67562	1302	E 5	13OC1964	C.78144
1303	E 6	13OC1964	0.03358	1304	F 1	11OC1964	0.01729	1305	F 2	11OC1964	C.00518
1308	F 3	11OC1964	0.00677	1447	B 6	ND1964	C.01804	1308	C 7	6NC1964	C.03954
1309	C* 1	10ND1964	0.00804	1310	C* 2	10ND1964	0.09524	1311	D 1	8ND1964	C.10835
1312	D 2	8ND1964	0.08692	1313	D 3	9ND1964	C.22973	1314	D 4	9ND1964	C.14067
1315	D 5	9ND1964	0.14559	1316	D 6	9ND1964	0.00756	1317	E 1	6NC1964	C.20679
1318	E 2	7ND1964	0.11986	1319	E 3	7ND1964	0.36656	1320	E 4	7ND1964	0.72389
1321	E 5	7ND1964	C.4916C	1322	E 6	7ND1964	0.31326	1323	F 1	6ND1964	0.01951
1324	F 2	6ND1964	0.01630	1325	F 3	6ND1964	0.00252	1337	C 3	2MR1967	C.06761
1338	C 3	28MR1967	0.20363	1339	C 5	28MR1967	0.04677	1340	C 7	28MR1967	C.2C361
1341	A 3	19AP1967	0.30374	1342	A 4	19AP1967	0.71463	1343	A 6	19AP1967	C.00208
1344	C 3	25AP1967	0.04632	1345	C 5	25AP1967	1.77378	1346	C 7	21AP1967	C.23367
1347	E 2	23AP1967	0.91050	1349	E 5	23AP1967	0.31254	1368	A 3	4MY1967	C.CC628
1369	A 4	4MY1967	0.01864	1370	A 6	3MY1967	0.00230	1372	C 5	5MY1967	C.00355
1374	E 2	7MY1967	0.01195	1375	E 3	7MY1967	0.00722	1376	E 5	6MY1967	C.01124

(1408	A 3	23MY1967	0.03577)	(1409	A 4	23MY1967	0.00595)	(1410	A 6	24MY1967	C.05074)
(1411	C 3	31MY1967	0.00410)	(1412	C 5	31MY1967	0.01263)	(1413	C 7	25MY1967	C.00316)
(1414	E 2	28MY1967	0.02015)	(1415	E 3	28MY1967	0.01124)	(1416	E 5	28MY1967	C.C3936)
(1431	A 3	12JN1967	0.72096)	(1432	A 4	13JN1967	2.14570)	(1433	C 3	17JN1967	5.42566)
(1434	C 5	17JN1967	C.83742)	(1435	C 7	13JN1967	2.65210)	(1436	E 2	15JN1967	C.5C659)
(1437	E 3	15JN1967	0.27454)	(1438	E 5	14JN1967	0.14887)	(1446	A 3	11JL1967	4.79429)
(1447	A 4	11JL1967	11.46145)	(1448	A 6	10JL1967	0.02122)	(1449	C 3	16JL1967	12.3C464)
(1450	C 5	16JL1967	9.46396)	(1451	C 7	16JL1967	0.75784)	(1452	E 2	14JL1967	3.27841)
(1453	E 3	15JL1967	4.42332)	(1454	E 5	15JL1967	0.45609)	(1504	A 3	28AU1967	C.CC247)
(1505	A 4	28AU1967	0.17520)	(1508	C 3	25E1967	0.08792)	(1509	C 5	25E1967	2.11971)
(1510	C 7	29AU1967	0.07588)	(1511	E 2	15E1967	3.86776)	(1512	E 3	15E1967	7.69593)
(1513	E 5	31AU1967	1.77359)	(1532	A 3	18SE1967	0.00657)	(1535	C 7	20SE1967	C.CC966)
(1536	E 2	24SE1967	2.29045)	(1537	E 3	24SE1967	0.66419)	(1538	E 5	23SE1967	C.14915)
(1541	E 2	11CC1967	C.01064)	(1542	E 3	11CC1967	2.13588)	(1379	GS 3	9MY1967	C.0C309)
(1380	GS 4	9MY1967	0.01345)	(1381	GS 5	10MY1967	C.C0954)	(1382	GS 6	10MY1967	C.0C555)
(1383	GS 7	10MY1967	0.01871)	(1384	GS 8	10MY1967	C.01294)	(1385	GS 9	10MY1967	C.CC942)
(1387	GS11	12MY1967	0.05941)	(1388	GS12	12MY1967	0.00603)	(1390	GS14	12MY1967	C.00587)
(1391	GS15	12MY1967	0.01437)	(1392	GS16	12MY1967	C.04007)	(1393	GS17	13MY1967	C.C1370)
(1394	GS18	13MY1967	0.24082)	(1395	GS19	13MY1967	C.01996)	(1397	GS21	13MY1967	C.0C131)
(1398	GS22	14MY1967	0.04554)	(1554	GS 1	30C1967	0.78275)	(1555	GS 2	30C1967	C.C1412)
(1557	GS 4	30C1967	0.04111)	(1558	GS 5	40C1967	0.01189)	(1560	GS 8	40C1967	C.02834)
(1562	GS10	5CC1967	0.00740)	(1563	GS11	50C1967	0.01403)	(1564	GS12	50C1967	C.0C165)
(1565	GS13	5CC1967	0.01014)	(1568	GS16	50C1967	0.00577)	(1569	GS17	50C1967	C.0C297)
(1571	GS19	6CC1967	0.00234)	(1572	GS20	60C1967	C.00090)	(1573	GS21	60C1967	C.01008)
(1575	GS28	60C1967	0.0C258)	(1544	MU 1	20C1967	C.00715)	(1547	PS 1	20C1967	C.CC798)
(1546	LU 1	20C1967	0.01501)	(1521	SH 1	18SE1967	C.01154)	(1526	PO 1	20SE1967	C.02845)
(1527	TR 1	20SE1967	0.03145)	(1528	SB 1	20SE1967	C.01444)	(1529	KW 1	20SE1967	C.05996)
(1530	FR 1	24SE1967	0.01000)	(1545	WL 1	20C1967	C.01351)	(1549	PQ 1	40C1967	C.C1370)
(1551	ES 1	5CC1967	0.17573)	(1552	SM 1	60C1967	C.03301)	(1550	PR 1	50C1967	C.18585)
(1553	SG 1	6DC1967	0.05161)	(1428	MU 2	29MY1967	0.00301)	(1426	PS 2	29MY1967	C.06299)
(1351	MI 2	21AP1967	0.74476)	(1427	LU 2	29MY1967	1.01695)	(1417	PO 2	22MY1967	C.02617)
(1350	BM 2	19AP1967	0.01101)	(1425	RA 2	25MY1967	0.17682)	(1399	PW 2	5MY1967	C.04081)
(1401	MO 2	6MY1967	0.0411e)	(1402	TR 2	6MY1967	0.04873)	(1400	SB 2	6MY1967	C.04765)
(1352	KW 2	21AP1967	2.61123)	(1353	FR 2	23AP1967	C.01055)	(1354	GM 2	25AP1967	C.02071)
(1429	WL 2	29MY1967	0.02123)	(1403	CA 2	10MY1967	3.13848)	(1404	PQ 2	10MY1967	C.C5081)
(1405	ES 2	12MY1967	0.59585)	(1407	SM 2	14MY1967	0.01791)	(1349	CI 2	19AP1967	C.C8981)
(1419	BU 2	23MY1967	0.40278)	(1420	IH 2	23MY1967	C.35233)	(1421	CH 2	23MY1967	C.2C819)
(1422	GA 2	23MY1967	0.40873)	(1423	WA 2	25MY1967	C.18413)	(1424	KA 2	25MY1967	C.26045)
(1430	MC 2	12JN1967	C.C2467)	(							

Synedra fasciculata (Agardh) Kützing.

Diatoma fasciculata Agardh, Disp. Alg. Sveciae, p. 35. 1812.
Synedra fasciculata (Agardh) Kützing, Bacill., p. 68. 1844.

Cells in girdle view broadly rectangular, often occurring in colonies of 2 or more cells. Valves linear to linear-lanceolate with broadly rounded to subrostrate ends. Specimens from Lake Michigan 74-220μ long, 4-6μ broad. Striae marginal, appearing rather coarse, 12-15 in 10μ. Axial area a broad lanceolate space without ornamentation. No specially defined central area is present. A distinct slime pore is usually visible near one end of each valve.

Most reports of this entity come from waters of high conductivity. In Lake Michigan it has been noted only in polluted harbors and appears to be associated with appreciable chloride contamination.

671 SYFASCIC TOT NO OF STATIONS 7

(1544	MU 1	20C1967	0.00238)	(1521	SH 1	18SE1967	C.00577)	(1428	MU 2	29MY1967	C.01808)
(1426	PS 2	29MY1967	0.05249)	(1417	MC 2	22MY1967	0.00374)	(1354	GM 2	25AP1967	C.CC345)
(1429	WL 2	29MY1967	C.1C617)	(							

Synedra minuscula Grun.

Synedra minuscula Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 39, fig. 13. 1881.

Cells in girdle view elongate rectangular. Valves linear-lanceolate to lanceolate with more or less sharply attenuated, sometimes slightly protracted, ends. Specimens from Lake Michigan 15-30μ long, 2-3μ broad. Striae parallel throughout the length of the valve, finely structured but distinct, 18-20 in 10μ. Axial area narrow, distinct. In the Lake Michigan specimens the central area is usually entirely lacking; when present it consists of a small structureless area surrounded by a few shortened striae.

This species is rare in our collections. The specimens observed are probably ultimately derived from periphyton communities. Previous reports indicate that this species reaches its greatest abundance in periphyton communities where it grows attached to filamentous algae.

675 SYNINUSC TOT NO OF STATIONS 61

(46973	CH	1876	0.02362)	(46910	CH	0C1945	C.00109)	(46914	CH	15AP1945	0.00320)
(46924	CH	10MY1946	0.00071)	(46923	CH	22ND1946	0.00219)	(46909	CH	MR1947	C.00455)
(46916	CH	4MY1947	0.00136)	(46906	CH	MY1947	C.00199)	(46919	CH	5JN1947	2.26855)
(46913	CH	6AU1947	0.01046)	(46922	CH	21AU1947	0.00145)	(46758	EV	5JN1937	1.39790)
(46771	EV	11JN1937	0.00951)	(46743	EV	20JN1937	0.03426)	(46770	EV	9JL1937	C.01789)
(46764	EV	17JL1937	0.07252)	(46757	EV	25JL1937	0.04333)	(46747	EV	1AU1937	0.02971)
(46763	EV	23AU1937	0.18263)	(46752	EV	15SE1937	C.10884)	(46760	EV	22SE1937	C.CC492)
(46750	EV	24SE1937	0.09426)	(46749	EV	12MR1938	0.01214)	(46768	EV	16MR1938	C.01470)
(46762	EV	18MR1938	0.04411)	(46756	EV	27AP1938	0.00168)	(1439	B 6	5JN1964	C.0C9[illegible])
(1441	B 6	24JL1964	C.00220)	(1295	D 5	15JL1964	0.00513)	(1257	E 3	14JL1964	0.CC7[illegible])
(1279	E 1	16SE1964	0.00393)	(1285	F 1	15SE1964	0.01747)	(1286	F 2	15SE1964	C.01095)
(1321	E 5	7ND1964	0.CC319)	(1370	A 6	3MY1967	0.C0230)	(1431	A 3	12JN1967	0.00257)
(1449	C 3	16JL1967	0.00382)	(1456	C 5	16JL1967	0.00190)	(1452	E 2	14JL1967	C.CC213)
(1536	E 2	24SE1967	0.00273)	(1540	C 5	4DC1967	C.00496)	(1542	E 3	11DC1967	C.01017)
(1556	GS 3	3DC1967	0.00521)	(1558	GS 5	4DC1967	C.CC793)	(1560	GS 8	4CC1967	C.00472)
(1567	GS15	5DC1967	C.00159)	(1544	MU 1	2CC1967	C.00715)	(1547	PS 1	2DC1967	C.07186)
(1546	LU 1	2CC1967	0.96034)	(1526	MD 1	20SE1967	C.01707)	(1530	PR 1	24SE1967	C.09001)
(1545	WL 1	2CC1967	0.73654)	(1548	CA 1	3CC1967	0.01272)	(1549	PO 1	4DC1967	C.C1370)
(1551	ES 1	5DC1967	0.00799)	(1550	MR 1	5DC1967	0.09912)	(1351	PI 2	21AP1967	C.00310)
(1427	LU 2	29MY1967	0.02421)	(1417	MC 2	22MY1967	0.00374)	(1400	SB 2	6MY1967	C.00596)
(1353	PR 2	23AP1967	0.01055)	(							

Synedra montana Krasske

Synedra montana Krasske *ex* Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)2:204, fig. 694. 1932.

Cells in girdle view very narrowly linear for most of their length, abruptly expanded near the center. Valves very narrow except at the expanded central portion, often more or less constricted at the center, with subcapitate ends. Specimens from Lake Michigan 80-200μ long, 3-4μ broad at the widest part, only 1-1.5μ broad near the ends. Frustules are often curved. Striae distinct, 12-14 in 10μ. Axial area variable, often relatively broad and lanceolate in outline, especially in the larger individuals. Central area completely lacking in our specimens.

The specimens from Lake Michigan have somewhat coarser structure and a greater size range than those originally described from the Alps. The general morphology of the frustule is, however, essentially similar. It appears that this species is much more common in periphyton communities in Lake Michigan than it is in the plankton.

706 SYSPECCK TOT NO OF STATIONS 63

(3541	CH	1FE1881	0.00978)	(46917	CH	12JA1948	0.00028)	(46913	CH	6AU1947	C.01046)
(46747	EV	1AU1937	0.02971)	(46763	EV	23AU1937	C.06088)	(46760	EV	22SE1937	C.01477)
(46750	EV	24SE1937	0.01414)	(46749	EV	12MR1938	0.02427)	(46762	EV	18MR1938	C.04411)
(1440	B 6	11JL1964	0.00369)	(1257	E 3	14JL1964	0.00239)	(1258	F 1	6JL1964	C.00944)
(1259	F 2	6JL1964	0.01239)	(1442	B 6	2AU1964	0.00682)	(1270	F 1	10AU1964	C.00272)
(1298	E 1	12CC1964	0.00269)	(1299	E 2	12CC1964	C.00314)	(1300	E 3	13DC1964	C.CC716)
(1302	E 5	13DC1964	0.C1620)	(1303	E 6	13CC1964	0.00560)	(1304	F 1	11DC1964	C.CC988)
(1305	F 2	11CC1964	0.01553)	(1308	C 7	6ND1964	C.00304)	(1309	C* 1	10ND1964	C.02251)
(1310	C* 2	10ND1964	0.01134)	(1311	D 1	8ND1964	C.02064)	(1312	D 2	8ND1964	C.C1242)
(1313	D 3	9ND1964	0.00579)	(1314	D 4	9ND1964	C.00861)	(1316	D 6	9ND1964	C.CC756)
(1317	E 1	6ND1964	0.00574)	(1319	E 3	7ND1964	C.00262)	(1320	E 4	7ND1964	C.C4137)
(1321	E 5	7ND1964	0.00319)	(1322	E 6	7NC1964	0.00667)	(1323	F 1	6ND1964	C.C1254)
(1324	F 2	6ND1964	0.00466)	(1225	F 3	6NC1964	0.C0504)	(1348	E 5	23AP1967	C.CC137)
(1432	A 4	13JN1967	0.00511)	(1433	C 3	17JN1967	0.00646)	(1447	A 4	11JL1967	C.00936)
(1449	C 3	16JL1967	0.01142)	(1450	C 5	16JL1967	0.00571)	(1510	C 7	29AU1967	C.CC316)
(1512	E 3	15E1967	0.01178)	(1532	A 3	18SE1967	0.00329)	(1533	A 4	19SE1967	0.00464)
(1535	C 7	20SE1967	0.00322)	(1540	C 5	4DC1967	C.00496)	(1379	GS 3	5MY1967	C.0C619)
(1389	GS13	12MY1967	0.00516)	(1393	GS17	13MY1967	0.00822)	(1394	GS18	13MY1967	C.0C344)
(1554	GS 1	3DC1967	0.01779)	(1557	GS 4	3DC1967	C.00747)	(1558	GS 5	4DC1967	C.C1189)
(1562	GS10	5DC1967	0.00247)	(1526	MC 1	20SE1967	0.00569)	(1548	CA 1	3DC1967	C.C3016)
(1425	PA 2	25MY1967	0.03538)	(1403	CA 2	10MY1967	C.01308)	(1404	PO 2	10MY1967	C.03811)

Synedra ostenfeldii (Krieger) A. Cleve

Synedra acus var. *ostenfeldii* Krieger, Pflanzenforsch., 10:36, fig. 29-2b. 1927.
Synedra ostenfeldii (Krieger) A. Cleve-Euler *ex* Stålberg, Verh. Internat. Verein. Limnol., 9:194. 1940.

Cells in girdle view linear-lanceolate, narrowing slightly from the middle to the rectangular ends. In life several cells are united at one end to form bushy colonies. Specimens from Lake Michigan 80-170μ long, 2-3μ broad. Valves lanceolate with capitate ends, very lightly silicified. Striae with very delicate structure 16-24 (usually 20-24) in 10μ. Axial area relatively broad, indistinctly bordered. Central area lacking in specimens from Lake Michigan.

This species is quite common in the summer flora of Lake Michigan, especially in areas that have undergone some degree of eutrophication. It is variable in morphology and the structures of the valve are so delicate that they are difficult to resolve satisfactorily except under optimal conditions.

702 SYSPECCB TOT AC OF STATIONS 271

(3541	CH		1FE1881	0.01956)	(446921	CH		23AC1945	C.00194)	(469C8	CH		DE1945	C.02014)
(46917	CH		12JA1946	0.00111)	(446915	CH		20FE1946	0.07967)	(46914	CH		19AP1946	0.01281)
(46924	CH		10MY1946	0.00423)	(446923	CH		22ND1946	0.00874)	(46920	CH		20DE1946	C.00C62)
(46909	CH		MR1947	0.02277)	(446912	CH		AP1947	C.06899)	(46916	CH		4MY1947	3.08754)
(46906	CH		MY1947	5.60821)	(446919	CH		5JN1947	1.18359)	(469C7	CH		JL1947	C.7C515)
(46913	CH		6AU1947	C.01946)	(446922	CH		21AU1947	C.10468)	(46758	EV		5JN1937	C.04903)
(46771	EV		11JN1937	C.99853)	(46743	EV		20JN1937	C.18412)	(46747	EV		1AU1937	C.00743)
(46765	EV		30AU1937	0.01673)	(46750	EV		24SE1937	C.00471)	(46744	EV		6CC1937	C.C1463)
(46749	EV		12MR1938	0.08496)	(44E751	EV		30MR1938	C.01117)	(46772	EV		18AP1938	C.04258)
(46756	EV		27AP1938	0.89326)	(46759	EV		19MY1938	C.07090)	(46761	EV		27MY1938	0.10356)
(46766	EV		14DE1938	0.03169)	(1223	B	3	18MY1964	0.06563)	(1224	B	4	18MY1964	0.02549)
(1225	C	6	15MY1964	0.24696)	(1226	C	7	16MY1964	0.45282)	(1227	C*	2	13MY1964	0.05264)
(1228	D	2	14MY1964	0.21020)	(1229	D	5	14MY1964	C.14802)	(1230	E	2	16MY1964	0.24004)
(1231	E	3	16MY1964	0.34243)	(1232	E	5	16MY1964	0.08696)	(1233	B	3	5JN2964	C.36675)
(1234	B	3	18JN1964	0.12652)	(1235	C	7	16JN1964	0.28808)	(1439	B	6	5JN1964	1.11888)
(1236	C*	1	8JN1964	0.09627)	(1237	C*	2	8JN1964	C.36092)	(1238	D	3	11JN1964	C.28000)
(1239	D	4	11JN1964	C.05570)	(1240	D	6	10JN1964	0.07056)	(1241	E	2	13JN1964	C.15968)
(1242	E	3	13JN1964	0.19033)	(1243	E	6	13JN1564	C.19001)	(1244	F	1	11JN1564	C.04934)
(1245	F	2	11JN1964	C.09681)	(1240	F	3	11JN1964	0.26893)	(1247	B	3	14JL1964	C.62134)
(1248	B	3	24JL1964	0.13794)	(1440	B	6	11JL1964	3.09540)	(1441	B	6	24JL1964	2.42120)
(1249	C	3	8JL1964	0.01358)	(1250	C	6	10JL1964	1.43885)	(1251	C	7	16JL1964	C.15354)
(1252	C*	1	16JL1564	C.C1674)	(1253	C*	2	16JL1964	C.44048)	(1254	D	2	15JL1964	2.41333)
(1255	D	5	15JL1964	5.92885)	(1256	E	2	14JL1964	2.17997)	(1257	E	3	14JL1964	7.03433)
(1258	F	1	6JL1964	0.22182)	(1259	F	2	6JL1964	1.19280)	(1260	F	2	6JL1964	C.53588)
(1261	B	3	2AU1964	0.02944)	(1262	B	3	17AU1964	C.02730)	(1442	B	6	2AU1964	1.C7472)
(1443	B	6	1EAU1964	0.01186)	(1263	C	7	15AU1964	C.02002)	(1265	C*	2	10AU1964	C.C4695)
(1266	D	3	18AU1964	C.22099)	(1267	D	6	18AU1964	0.00216)	(1268	E	2	15AU1964	C.42127)
(1269	E	3	15AU1964	4.98821)	(1444	B	6	19SE1964	C.02122)	(1271	C	7	22SE1964	C.C2611)
(1272	C*	1	10SE1964	0.00821)	(1273	C*	2	10SE1964	C.09678)	(1274	D	1	17SE1964	C.C1877)
(1275	D	2	17SE1964	0.01935)	(1276	D	3	18SE1964	1.13992)	(1277	D	4	18SE1964	(.09295)
(1278	D	6	18SE1964	0.01922)	(1279	E	1	16SE1564	0.02356)	(1280	E	2	16SE1964	C.52420)
(1281	E	3	16SE1964	4.39509)	(1282	E	4	16SE1964	C.91967)	(1283	E	5	16SE1964	1.43435)
(1284	E	6	17SE1964	0.05716)	(1285	F	1	15SE1964	0.08153)	(1286	F	2	15SE1964	C.76620)
(1287	F	3	15SE1964	0.19015)	(1445	B	6	14DC1964	C.03588)	(1289	C	7	14CC1964	C.CC879)
(1290	C*	1	16DC1964	0.01137)	(1293	D	2	15DC1964	C.01415)	(1294	D	3	15DC1964	C.12526)
(1295	D	4	15DC1964	0.05351)	(1296	D	5	14DC1964	0.04328)	(1297	D	6	14DC1964	C.C3808)
(1298	E	1	12CC1564	0.00539)	(1299	E	2	12CC1564	C.01257)	(1300	E	3	13DC1964	C.22552)
(1301	E	4	13CC1964	0.09273)	(1302	E	5	13DC1964	0.12957)	(1303	E	6	13DC1964	C.C1119)
(1307	B	6	ND1964	0.01443)	(1308	C	7	6ND1964	0.00304)	(1309	C*	1	10ND1964	C.CC167)
(1310	C*	2	10ND1964	0.00680)	(1311	D	1	8ND1964	0.00774)	(1312	D	2	8ND1964	0.00931)
(1313	D	3	9ND1964	C.05405)	(1314	D	4	9ND1964	0.04306)	(1315	D	5	9ND1964	C.C5005)
(1316	D	6	9ND1964	0.20777)	(1317	E	1	6ND1964	0.01532)	(1318	E	2	7ND1964	C.02894)
(1319	E	3	7ND1964	0.85356)	(1320	E	4	7ND1964	C.28656)	(1321	E	5	7NC1964	C.C4469)
(1322	E	6	7ND1964	0.35325)	(1324	F	2	6NC1964	0.00466)	(1336	C	3	27JA1967	C.00385)
(1337	C	3	2MR1967	0.08084)	(1338	C	3	28MR1567	0.15735)	(1339	C	5	28MR1967	C.43669)
(1340	C	7	28MR1967	0.66173)	(1341	A	3	19AP1967	0.45562)	(1342	A	4	19AP1967	1.38957)
(1343	A	6	19AP1967	0.12644)	(1344	C	3	25AP1967	1.15808)	(1345	C	5	25AP1967	2.55264)
(1346	C	7	21AP1967	1.02813)	(1347	E	2	23AP1567	2.27624)	(1348	E	5	23AP1967	C.32077)
(1368	A	3	4MY1967	0.65975)	(1369	A	4	4MY1567	C.01491)	(1370	A	6	3MY1967	C.03222)
(1371	C	3	4MY1967	0.00462)	(1372	C	5	5MY1967	C.12058)	(1373	C	7	5MY1967	C.C2567)
(1374	E	2	7MY1967	0.00598)	(1375	E	3	7MY1567	C.09865)	(1376	E	5	6MY1967	C.36541)
(1408	A	3	23MY1567	0.31302)	(1409	A	4	23MY1967	C.19044)	(1410	A	6	24MY1567	C.51308)
(1411	C	3	31MY1967	0.14360)	(1412	C	5	31MY1967	0.88391)	(1413	C	7	25MY1967	0.10108)
(1414	E	2	28MY1967	C.47C19)	(1415	E	3	28MY1967	C.52615)	(1416	E	5	28MY1967	C.2C556)
(1431	A	3	12JN1967	2.7C361)	(1432	A	4	13JN1967	1.78809)	(1433	C	3	17JN1967	2.71283)
(1434	C	5	17JN1967	0.57722)	(1435	C	7	13JN1567	C.73880)	(1436	E	2	15JN1967	3.54610)
(1437	E	3	15JN1967	1.31887)	(1438	E	5	14JN1967	0.64633)	(1446	A	3	11JL1967	C.68490)
(1447	A	4	11JL1967	1.39175)	(1448	A	6	10JL1567	C.01061)	(1449	C	3	16JL1967	4.62971)
(1450	C	5	16JL1967	3.99886)	(1451	C	7	16JL1967	C.15944)	(1452	E	2	14JL1967	1.78822)
(1453	E	3	15JL1967	7.25425)	(1454	E	5	15JL1967	C.28006)	(1504	A	3	29AU1967	C.C1728)
(1505	A	4	28AU1967	0.01031)	(1506	A	6	29AU1967	0.00523)	(1508	C	3	25E1967	C.19583)
(1509	C	5	25E1967	0.84789)	(1510	C	7	29AU1967	C.04742)	(1511	E	2	15E1967	0.71830)
(1512	E	3	15E1967	12.36846)	(1513	E	5	31AU1967	C.78038)	(1532	A	3	18SE1967	0.01642)
(1533	A	4	19SE1967	0.02321)	(1534	A	6	19SE1967	C.00620)	(1535	C	7	20SE1967	C.00322)

(1536	E 2	24SE1967	0.05435)	(1537	E 3	24SE1967	0.05719)	(1538	E 5	23SE1967	1.93338)
(1540	E 5	4DC1967	0.00496)	(1541	E 2	11CC1967	0.18026)	(1542	E 3	11DC1967	2.13588)
(1543	E 5	10DC1967	0.02872)	(1377	GS 1	9MY1967	0.01187)	(1378	GS 2	9MY1967	0.04626)
(1379	GS 3	9MY1967	0.02476)	(1380	GS 4	9MY1967	0.39348)	(1381	GS 5	10MY1967	0.17641)
(1382	GS 6	10MY1967	0.00833)	(1383	GS 7	10MY1967	0.10960)	(1384	GS 8	10MY1967	0.12940)
(1385	GS 9	10MY1967	0.01648)	(1386	GS10	12MY1967	0.01149)	(1387	GS11	12MY1967	0.17823)
(1388	GS12	12MY1967	0.01207)	(1389	GS13	12MY1967	0.00516)	(1391	GS15	12MY1967	0.03831)
(1392	GS16	12MY1967	0.04623)	(1393	GS17	13MY1967	0.04931)	(1394	GS18	13MY1967	0.34747)
(1395	GS19	13MY1967	0.01996)	(1397	GS21	13MY1967	0.00262)	(1398	GS22	14MY1967	0.04594)
(1556	GS 1	30C1967	0.78275)	(1555	GS 2	30C1967	0.05297)	(1556	GS 3	30C1967	0.02086)
(1557	GS 4	30C1967	0.02616)	(1558	GS 5	40C1967	0.03567)	(1559	GS 7	40C1967	0.10142)
(1560	GS 8	40C1967	0.01889)	(1561	GS 9	40C1967	0.00587)	(1562	GS10	50C1967	0.04194)
(1574	GS22	60C1967	0.00288)	(1547	MS 1	20C1967	0.01597)	(1520	MO 1	18SE1967	0.01414)
(1521	SM 1	18SE1967	0.00577)	(1526	MO 1	26SE1967	0.05120)	(1527	IR 1	26SE1967	0.01256)
(1529	KW 1	20SE1967	0.02398)	(1530	PR 1	24SE1967	0.03000)	(1545	WL 1	20C1967	0.01351)
(1548	CA 1	30C1967	0.02544)	(1549	MQ 1	40C1967	0.01370)	(1551	ES 1	50C1967	0.01598)
(1552	SM 1	60C1967	0.01321)	(1553	SG 1	60C1967	0.00734)	(1428	PU 2	29MY1967	0.02109)
(1426	PS 2	29MY1967	3.06352)	(1351	MI 2	21AP1967	0.49851)	(1427	LU 2	29MY1967	3.29298)
(1417	MO 2	22MY1967	0.10842)	(1418	SM 2	22MY1967	0.03110)	(1350	BM 2	19AP1967	0.00220)
(1425	RA 2	25MY1967	0.20334)	(1399	PW 2	5MY1967	1.19695)	(1401	MO 2	6MY1967	0.25202)
(1402	TR 2	6MY1967	0.40065)	(1400	SB 2	6MY1967	0.80415)	(1352	RU 2	21AP1967	0.93627)
(1353	FR 2	23AP1967	0.36920)	(1354	GH 2	25AP1967	0.12773)	(1429	WL 2	29MY1967	0.19110)
(1403	CA 2	10MY1967	1.32078)	(1404	MQ 2	10MY1967	0.07622)	(1409	ES 2	12MY1967	0.05805)
(1407	SM 2	14MY1967	0.08957)	(1349	CI 2	19AP1967	0.36281)	(1406	GB 2	13MY1967	0.00270)
(1419	BU 2	23MY1967	0.45771)	(1420	IH 2	23MY1967	0.52870)	(1421	CH 2	23MY1967	0.27758)
(1422	GA 2	23MY1967	0.37807)	(1423	WA 2	25MY1967	0.25693)	(1424	RR 2	25MY1967	0.50626)
(1430	MC 2	12JN1967	0.02467)	(							

Synedra parasitica (Wm. Smith) Hust.

Odontidium ? parasiticum Wm. Smith, Syn. British Diat., vol. 2, p. 19, supp. pl. 60, fig. 375. 1856.
Fragilaria ? parasitica (Wm. Smith) Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 45, fig. 30. 1881.
Synedra parasitica (Wm. Smith) Hustedt *in*: Pascher, Sussw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 161, fig. 195. 1930.

Cells in girdle view rectangular, on focusing obviously expanded in the central portion. Valves rhombic-lanceolate with much expanded centers and narrow, sharply attenuated to subcapitate ends. Specimens from Lake Michigan 10-25µ long, 4-6µ broad. Axial area broad, lanceolate, without visible ornamentation. Striae finely structured, short 16-19 in 10µ.

This species often grows attached to some of the larger tychoplanktonic algae, especially members of the genera *Nitzschia*, *Surirella*, and *Cymatopleura*.

678 SYPARAS1 TET NO OF STATIONS 30

446921	CH	23ND1945	0.00129)	446915	CH	20FE1946	0.00569)	446914	CH	19AP1946	0.00320)
446924	CH	10MY1946	0.00141)	446923	CH	22ND1946	0.00656)	446920	CH	20DE1946	0.00062)
446905	CH	JA1947	0.00122)	446909	CH	MR1947	0.00911)	446907	CH	JL1947	0.00049)
446758	EV	5JN1937	0.00357)	446747	EV	1AU1937	0.00495)	446765	EV	30AU1937	0.00558)
446767	EV	27DE1937	0.00387)	446749	EV	12MR1938	0.01214)	1242	E 3	13JN1964	0.00150)
(1245	P 2	11JN1964	0.00346)	(1304	P 1	11OC1964	0.00247)	(1453	E 3	15JL1967	0.00253)
(1388	GS12	12MY1967	0.00603)	(1389	GS13	12MY1967	0.00774)	(1392	GS16	12MY1967	0.00308)
(1393	GS17	13MY1967	0.00274)	(1394	GS18	13MY1967	0.00516)	(1395	GS19	13MY1967	0.00235)
(1397	GS21	13MY1967	0.00065)	(1565	GS13	50C19[illegible]	0.03549)	(1358	BM 2	19AP1967	0.01542)
(1352	RW 2	21AP1967	0.00859)	(1404	MQ 2	10MY1967	0.02561)	(1405	ES 2	12MY1967	0.00645)

Synedra parasitica var. *subconstricta* (Grun.) Hust.

Fragilaria parasitica var. *subconstricta* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 45, fig. 29. 1881.
Synedra parasitica var. *subconstricta* (Grun.) Hustedt *in*: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 161, fig. 196. 1930.

Valves more or less constricted in the middle, other morphologic features of the frustule and ornamentation of the valve essentially similar to the nominate variety.

677 SYPARAVS TET NO OF STATIONS 2

(1341	A 3	19AP1967	0.00108)	(1350	BM 2	19AP1967	0.04405) (

Synedra pulchella Ralfs

Synedra pulchella Ralfs *ex* Kützing, Bacill., p. 68, pl. 29, fig. 87. 1844.

Cells in girdle view rectangular-lanceolate, slightly narrowed toward the ends. Valves lanceolate to linear-lanceolate with attenuated, rostrate or subcapitate ends. Specimens from Lake Michigan 46–100μ long, 5–7μ broad. Valves strongly silicified, all structures distinct and robust in appearance. Axial area narrow, slightly lanceolate, broader toward the mid-portion of the valve. Central area quadrate extending entirely across the mid-portion of the valve, distinctly thickened at the margins with an ovoid, less thickened region occupying the center. This area sometimes contains ornamentation appearing as partially developed striae. Striae well defined, distinctly punctate, parallel through most of the length of the valve, becoming slightly radiate near the apices, 12–16 in 10μ.

This species is most often reported from mineralized inland waters or from brackish waters. It is very rare in Lake Michigan at the present time but can be expected to become more abundant in areas receiving heavy pollution from wastes high in chlorides.

678 S.PULCHE ICT NO OF STATIONS 5

(1564	A 3	28AU1967	0.00247)	(1428	MU 2	29MY1967	C.01205)	(1426	MS 2	29MY1967	C.01050)		
(1350	BH 2	19AP1967	0.00220)	(1406	GB 2	13MY1967	0.00539)	(					

Synedra rumpens Kütz.

Synedra rumpens Kützing, Bacill., p. 69, pl. 16, fig. 6(6), figs. 4–5. 1844.

Cells in girdle view linear, very slightly narrowed toward the ends. Valves linear-lanceolate with somewhat protracted, rostrate to subcapitate ends. Specimens from Lake Michigan 30–70μ long, 2–4μ broad. Axial area narrow, linear through most of the length of the valve, in some specimens widened near the midportion of the valve. Central area a structureless transverse fascia extending to the margins of the valve, not visibly thickened.

675 SYRUPPEN ICT NO OF STATIONS 46

(BC973	CH	1876	0.07085)	(46517	CH	12JA1946	C.00083)	(46914	CH	19AP1946	C.00214)
(46920	CH	20DE1946	0.00123)	(46516	CH	4MY1947	C.00034)	(46919	CH	5JN1947	C.00455)
(46922	CH	21AU1947	C.00097)	(46764	EV	17JL1937	0.00806)	(46747	EV	1AU1937	C.00743)
(46765	EV	3CAU1937	0.00558)	(46752	EV	15SE1937	0.02177)	(46750	EV	24SE1937	C.00471)
(46749	EV	12MR1938	0.01214)	(46768	EV	16MR1938	0.01470)	(46756	EV	27AP1938	C.CC168)
(1284	E 6	17SE1964	0.00635)	(1302	E 5	13DC1964	C.02429)	(1311	D 1	8ND1964	C.CC516)
(1313	D 3	9ND1964	C.00579)	(1314	D 4	9NC1964	C.00574)	(1317	E 1	6NC1964	C.CC383)
(1318	E 2	7ND1964	0.00380)	(1319	E 3	7ND1964	C.01571)	(1320	E 4	7ND1964	C.01861)
(1321	E 5	7NC1964	0.00638)	(1322	E 6	7ND1964	C.00667)	(1324	F 2	6ND1964	C.00466)
(1342	A 4	19AP1967	0.00180)	(1371	C 3	4MY1967	C.00231)	(1395	GS19	13MY1967	C.00117)
(1396	GS20	13MY1967	0.00148)	(1574	GS22	6DC1967	C.00288)	(1544	PU 1	2DC1967	C.00715)
(1547	MS 1	2DC1967	0.00798)	(1522	BH 1	18SE1967	C.00365)	(1527	TR 1	20SE1967	C.00629)
(1531	GH 1	25SE1967	0.00845)	(1545	BL 1	2DC1967	0.01351)	(1549	PG 1	4DC1967	C.C1370)
(1550	MP 1	5DC1967	0.18585)	(1428	MU 2	29MY1967	0.01205)	(1427	LU 2	29MY1967	C.02421)
(1417	MD 2	22MY1967	0.01122)	(1350	BH 2	19AP1967	C.03084)	(1357	FR 2	23AP1967	C.01055)
(1354	GH 2	25AP1967	0.00863)	(							

Synedra rumpens var. *familiaris* (Kütz.) Hust.

Synedra familiaris Kützing, Bacill., p. 68, pl. 15, fig. 12. 1844.
Synedra rumpens var. *familiaris* (Kutz.) Hustedt *in*: Pascher, Sussw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 156, fig. 176. 1930.

Valves linear-lanceolate, somewhat constricted in the middle and slightly swollen on either side of the central area. Striae parallel throughout, about 18–20 in 10μ, appearing more delicate than in the nominate variety.

680 SYNUMPVR TOT NO OF STATIONS 9

146757	EV		25JL1937	C.00481)	146763	EV		23AU1937	C.12175)	146761	EV		27MY1938	C.00273)
1236	CF	1	8JN1964	0.00175)	1522	BH	1	18SE1967	0.00182)	1526	MD	1	20SE1967	C.01138)
1527	TM	1	20SE1967	0.00629)	1428	ML	2	29MY1967	C.00301)	1350	BH	2	19AP1967	C.00220)

Synedra rumpens var. *fragilarioides* Grun.

Synedra rumpens var. *fragilarioides* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 40, fig. 12. 1881.

Frustules more strongly silicified than in the nominate variety. Striae 10-12 in 10μ, visibly cross-lineate. Central area appears thickened and often contains irregular markings appearing as partially developed striae. In some specimens the central area is somewhat expanded. Shape, size range and general morphology of the frustule essentially similar to the nominate variety.

682 SYNUMPVR TOT NO OF STATIONS 8

1235	C	7	16JN1964	0.00565)	1240	D	6	10JN1964	C.00767)	1243	E	6	13JN1964	C.00209)
1338	C	3	28MR1967	0.00132)	1341	A	3	19AP1967	0.00108)	1343	A	6	19AP1967	C.00069)
1347	C	7	21AP1967	0.00134)	1408	A	3	23MY1967	C.00447)					

Synedra rumpens var. *meneghiniana* Grun.

Synedra rumpens var. *? meneghiniana* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 40, fig. 13. 1881.

Valves linear with rostrate ends. Striae 13-15 in 10μ, without visible substructure. Other morphologic features of the frustule essentially similar to the nominate variety.

These entities are all found in periphyton communities in a variety of habitats. Occasional specimens are noted in offshore plankton collections from Lake Michigan.

681 SYNUMPVR TOT NO OF STATIONS 1

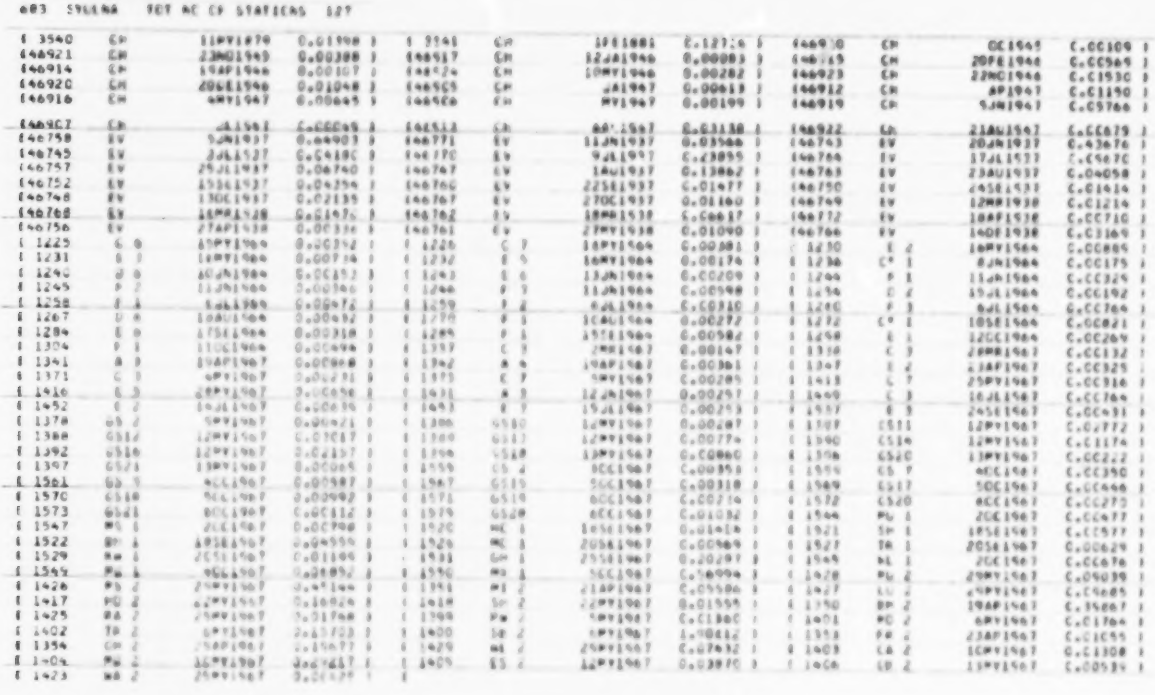
1341	A	3	19AP1967	C.00217)

Synedra ulna (Nitz.) Ehr.

Bacillaria ulna Nitzsch, Neue Schrift. Naturf. Ges. Halle, 3(1):99, pl. 5. 1817.
Synedra ulna (Nitz.) Ehrenberg, Ber. Akad. Wiss. Berlin 1836:53. 1836.

Cells in girdle view very elongate-rectangular, usually slightly expanded at the ends. Valves linear to linear-lanceolate with rostrate ends. Specimens from Lake Michigan 75-220μ long, 5-8μ broad. Axial area narrow, linear. Central area usually a hyaline fascia reaching both margins of the valve, in some specimens reduced or entirely lacking. Striae parallel throughout, finely but distinctly lineate-punctate, 8-12 in 10μ. A distinct "jelly pore" is present at one end of each valve.

This species finds its primary habitat in the periphyton but is often found in plankton collections, often in considerable abundance. Numerous varieties have been described. The majority of these are also usually found in periphyton communities but some are adapted to planktonic existence.



Synedra ulna var. *aequalis* (Kütz.) Hust.

Frustulia aequalis Kützing, Syn. Diat., p. 18, fig. 30. 1834.
Synedra ulna var. *aequalis* (Kütz.) Hustedt *in*: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)2:199, fig. 691A, d. 1932.

Valves linear without special morphological demarcation of the ends. Other characteristics essentially similar to the nominate variety.

Synedra ulna var. *amphirhynchus* (Ehr.) Grun.

Synedra amphirhynchus Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:425, pl. 3(1), fig. 25. 1843.
Synedra ulna var. *amphirhynchus* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:397. 1862.

Valves lanceolate with very narrow and much produced rostrate to capitate ends. Other morphologic features of the frustule and ornamentation of the valve essentially similar to the nominate variety. Specimens so far observed from Lake Michigan are in the lower size range (75-190μ long).

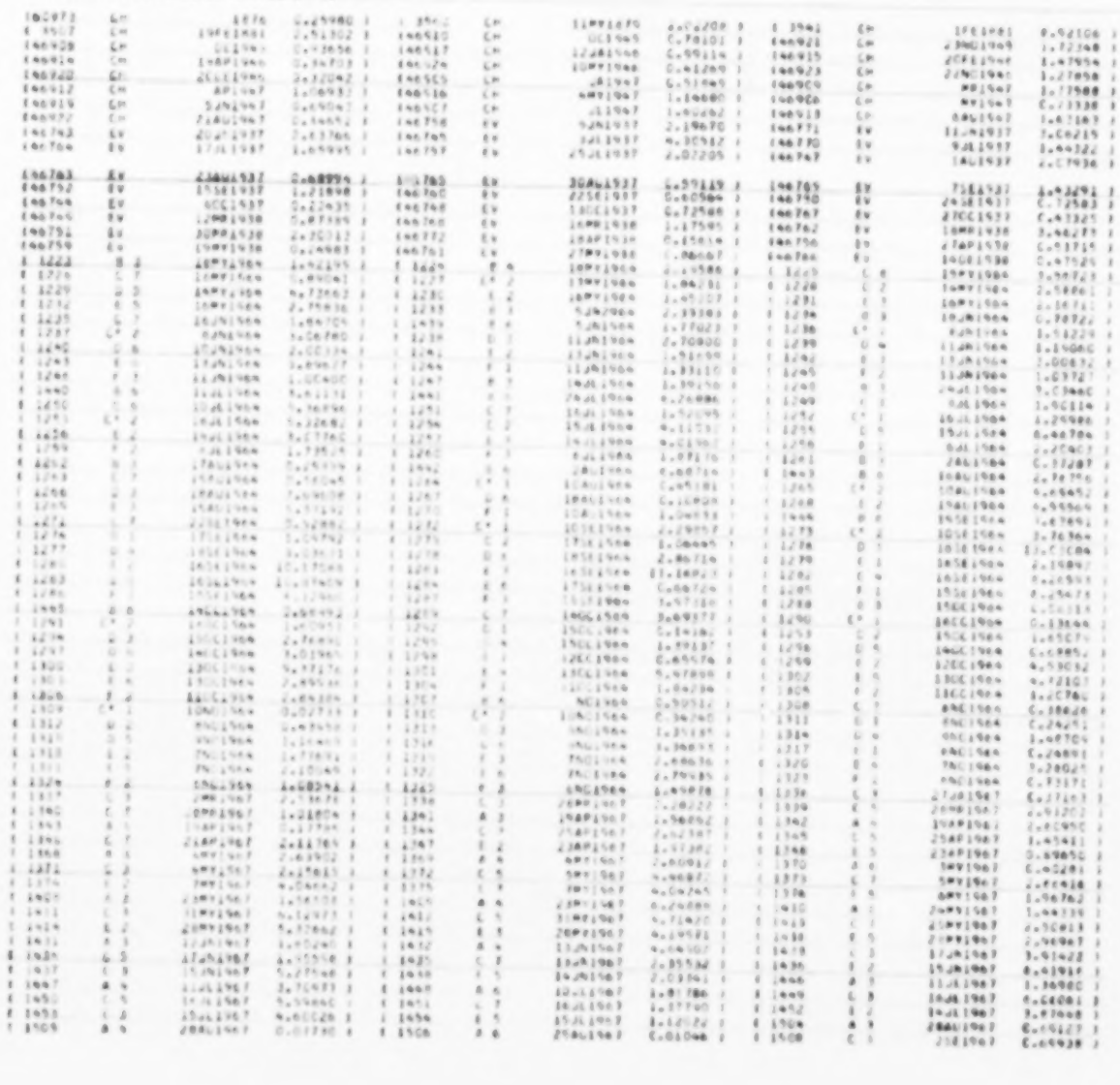
This entity is rare in our collections and the specimens observed are probably derived from periphyton communities.

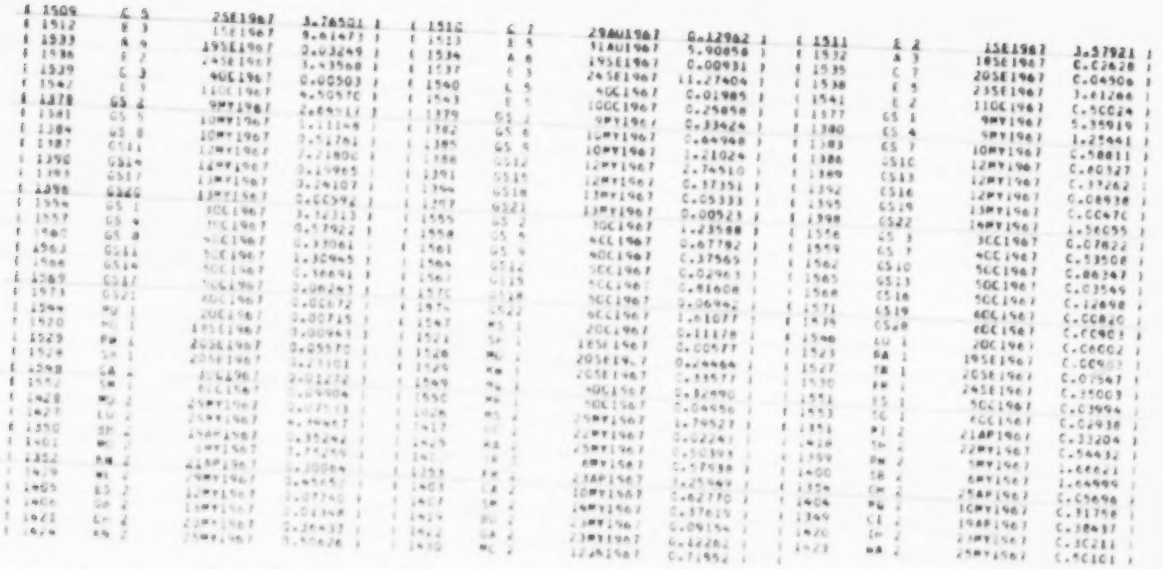
Synedra ulna var. *chaseana* Thomas

Synedra ulna var. *chaseana* Thomas *in*: Walker and Chase, New and rare diatoms, Ser. 1, p. 4, pl. 2, fig. 3. 1886.

Valves very elongate, narrowly linear-lanceolate, with slightly expanded, subcapitate ends which are cuneately rounded at the tip. Central area usually completely lacking, sometimes marked by a few less-developed striae in the mid-portion of the valve. Specimens from Lake Michigan 380-600+μ long, only 3-5μ broad. Striae coarse, 8-11 in 10μ.

This entity is euplanktonic and is abundant in many collections from Lake Michigan. It may be viewed as the extreme adaptation to planktonic existence in this group. In some respects its morphology is distinct from the *S. ulna* and some authors (Boyer 1927) consider it to be a separate species.



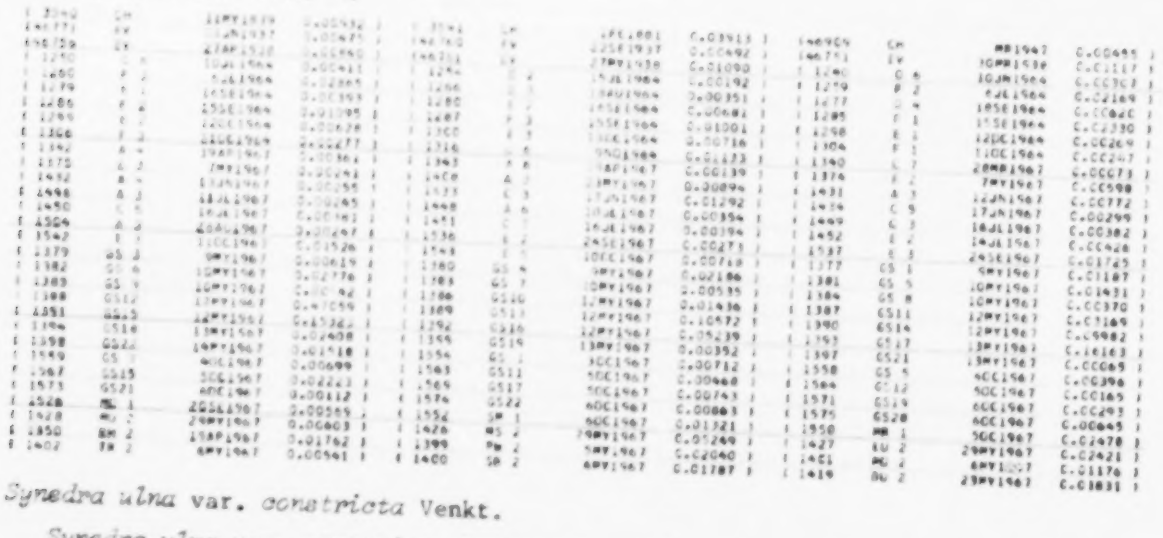


Synedra ulna var. *clavicepe* Hust.

Synedra ulna var. *clavicepe* Hustedt, Arch. Hydrobiol., Suppl. 15:157, pl. 10, fig. 36. 1938.

Valves linear with slightly expanded terminal portions and bluntly rounded ends. Striae coarse, usually 8-9 in 10μ. Specimens from Lake Michigan 109-520μ long.

Some authorities have speculated that specimens having this morphology are auxospore stages of *S. ulna*. The size range of specimens noted in this study seems to preclude this possibility.



Synedra ulna var. *constricta* Venkt.

Synedra ulna var. *constricta* Venkataraman, Proc. Indian Acad. Sci., 10 (B6):308, fig. 36. 1939.

Valves relatively broadly lanceolate, constricted in the center, with narrowly produced, rostrate ends. Specimens from Lake Michigan 75-180μ long, 6-8μ broad. Central area more or less elliptical, either reaching to the margins of the valve or bordered by shortened striae. Striae somewhat finer than in the nominate variety, 10-13 in 10μ.

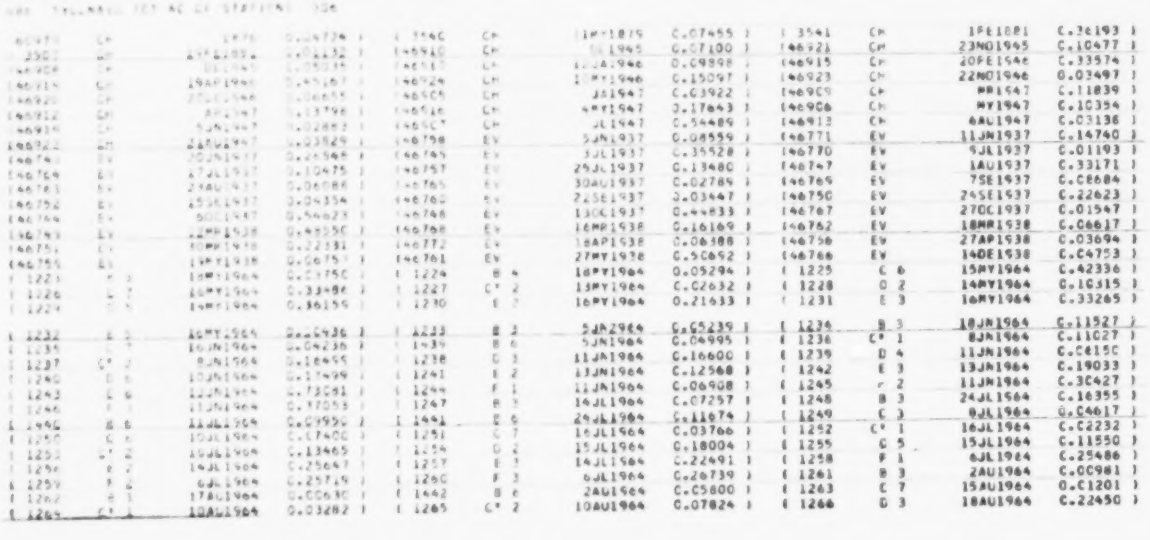
This entity is abundant and widely distributed in periphyton collections. Occasional specimens are noted in plankton collections from Lake Michigan. Its distinctive morphology may warrant its treatment as a separate species.

Synedra ulna var. *danica* (Kütz.) V. H.

Synedra danica Kützing, Bacill., p. 66, pl. 14, fig. 13. 1844.
Synedra ulna var. *danica* (Kütz.) Van Heurck, Syn. Diat. Belgique, p. 151. 1885.

Valves elongate, linear-lanceolate with protracted, subcapitate ends. Specimens from Lake Michigan 180-350μ long, 5-6μ broad. Striae coarse, 9-11 in 10μ. Central area usually present, rather small and rectangular in outline, sometimes containing faint ornamentation with the appearance of partially developed striae.

This entity is common in our collections from Lake Michigan, especially those taken from areas that have undergone enrichment. In some respects, it resembles *S. ulna* var. *biceps* but may be distinguished from that taxon by its slightly broader valves, the presence of a central area and the shape of the ends of the valves which are smoothly rounded rather than more or less lanceolate as in *S. ulna* var. *biceps*. In several of our collections from Lake Michigan populations of *S. ulna* var. *danica* occur together with unusual specimens with elongate expanded ends similar to the specimens Gemeinhardt (1926) cites as "regeneration forms."



(1267	D 6	18AU1964	0.01513)	(1268	E 2	15AU1964	C.70030)	(1269	E 3	15AU1964	C.35356)
(1270	F 1	10AU1964	0.09258)	(1444	B 6	19SE1964	C.16066)	(1272	C' 1	10SE1964	0.01231)
(1273	C' 2	10SE1964	0.01613)	(1274	D 1	17SE1964	0.04223)	(1275	D 2	17SE1964	C.C2580)
(1276	D 3	18SE1964	0.45820)	(1277	D 4	18SE1964	C.03718)	(1278	D 6	18SE1964	0.29594)
(1279	E 1	16SE1964	0.02356)	(1280	E 2	16SE1964	C.32678)	(1281	E 3	16SE1964	C.31786)
(1282	E 4	16SE1964	0.14404)	(1283	E 5	16SE1964	C.66201)	(1284	E 6	17SE1964	C.05719)
(1285	F 1	15SE1964	0.43096)	(1286	F 2	15SE1964	0.14229)	(1287	F 3	15SE1964	C.10508)
(1445	B 6	14OC1964	0.02283)	(1289	C 7	14OC1964	C.06596)	(1290	C' 1	16OC1964	C.CC758)
(1291	C' 2	16OC1964	C.0C978)	(1293	D 2	15CC1964	C.01887)	(1294	D 3	15OC1964	C.04615)
(1295	D 4	15CC1964	0.06541)	(1296	D 5	14OC1964	0.05115)	(1297	D 6	14OC1964	C.14089)
(1298	E 1	12OC1964	C.01077)	(1299	E 2	12OC1964	0.04398)	(1300	E 3	13OC1964	C.45463)
(1301	E 4	13OC1964	0.61821)	(13C2	E 5	13CC1964	0.15386)	(1303	E 6	13OC1964	C.17911)
(1304	F 1	11OC1964	0.20498)	(1305	F 2	11OC1964	C.12766)	(1306	F 3	11OC1964	C.10810)
(1307	B 6	NO1964	0.00722)	(13C8	C 7	6NO1964	0.02129)	(1310	C' 2	10NC1964	C.CC227)
(1312	D 2	8NO1964	0.00310)	(1313	D 3	9NO1964	C.02510)	(1314	D 4	9NO1964	0.04306)
(1315	D 5	9NO1964	0.02275)	(1316	D 6	9NC1964	C.18888)	(1317	E 1	6NC1964	C.0C191)
(1318	E 2	7NO1964	0.02093)	(1319	E 3	7NO1964	0.02880)	(1320	E 4	7NO1964	0.C6687)
(1321	E 5	7NO1964	0.04469)	(1322	E 6	7NO1964	C.12664)	(1323	F 1	6NC1964	0.02509)
(1324	F 2	6NO1964	C.03028)	(1325	F 3	6NO1964	0.12595)	(1336	C 3	27JA1967	C.02118)
(1337	C 3	2MR1967	0.51441)	(1338	C 5	28MR1967	0.33850)	(1339	C 5	28MR1967	C.72956)
(1340	C 7	28MR1967	0.50902)	(1341	A 3	19AP1967	0.60749)	(1342	A 4	19AP1967	C.25265)
(1343	A 6	19AP1967	0.48632)	(1344	C 3	25AP1967	0.63694)	(1345	C 5	25AP1967	C.45611)
(1346	C 7	21AP1967	0.93467)	(1347	E 2	23AP1967	0.34144)	(1348	E 5	23AP1967	C.31254)
(1368	A 3	4MY1967	1.42947)	(1369	A 4	4MY1967	1.62638)	(1370	A 6	3MY1967	1.39487)
(1371	C 3	4MY1967	2.26234)	(1372	C 5	5MY1967	0.99305)	(1373	C 7	5MY1967	C.55901)
(1374	E 2	7MY1967	1.39271)	(1375	E 3	7MY1967	0.92639)	(1408	A 3	23MY1967	2.67406)
(1409	A 4	23MY1967	1.14563)	(1410	A 6	24MY1967	3.15742)	(1411	C 3	31MY1967	2.15402)
(1412	C 5	31MY1967	C.98493)	(1413	C 7	25MY1967	1.21616)	(1414	E 2	28MY1967	C.94039)
(1415	E 3	28MY1967	1.36255)	(1416	E 5	28MY1967	C.19900)	(1431	A 3	12JN1967	1.56037)
(1432	A 4	13JN1967	2.14570)	(1433	C 3	17JN1967	3.31998)	(1434	C 5	17JN1967	1.61484)
(1435	C 7	13JN1967	1.02927)	(1436	E 2	15JN1967	2.36648)	(1437	E 3	15JN1967	C.47103)
(1438	E 5	14JN1967	0.43210)	(1446	A 3	11JL1967	C.57238)	(1447	A 4	11JL1967	5.99270)
(1448	A 6	10JL1967	C.36074)	(1449	C 3	16JL1967	1.60495)	(1450	C 5	16JL1967	1.42055)
(1451	C 7	16JL1967	1.28735)	(1452	E 2	14JL1967	0.49815)	(1453	E 3	15JL1967	C.64707)
(1454	E 5	15JL1967	1.02820)	(1504	A 3	28AU1967	0.31354)	(1505	A 4	28AU1967	0.01031)
(1506	A 6	29AU1967	0.05754)	(1508	C 3	2SE1967	0.21181)	(1509	C 5	2SE1967	C.54507)
(1510	C 7	29AU1967	0.04742)	(1511	E 2	1SE1967	0.53719)	(1512	E 3	1SE1967	1.00518)
(1513	E 5	31AU1967	0.24323)	(1532	A 3	18SE1967	0.02957)	(1533	A 4	19SE1967	C.01393)
(1534	A 6	19SE1967	C.00931)	(1535	C 7	20SE1967	0.00322)	(1536	E 2	24SE1967	C.38174)
(1537	E 3	24SE1967	1.40602)	(1538	E 5	23SE1967	0.35353)	(1540	C 5	4OC1967	0.00496)
(1542	E 3	11OC1967	C.24410)	(1543	E 5	10OC1967	0.03591)	(1377	GS 1	9MY1967	2.95270)
(1378	GS 2	9MY1967	1.07649)	(1379	GS 3	9MY1967	C.51993)	(1380	GS 4	9MY1967	C.94165)
(1381	GS 5	10MY1967	0.46033)	(1382	GS 6	10MY1967	0.53568)	(1383	GS 7	10MY1967	C.41435)
(1384	GS 8	10MY1967	0.36972)	(1385	GS 9	10MY1967	1.31855)	(1386	GS10	12MY1967	C.25302)
(1387	GS11	12MY1967	1.01394)	(1388	GS12	12MY1967	2.81146)	(1389	GS13	12MY1967	C.99270)
(1390	GS14	12MY1967	2.05520)	(1391	GS15	12MY1967	2.46133)	(1392	GS16	12MY1967	1.07868)
(1393	GS17	13MY1967	1.40806)	(1394	GS18	13MY1967	0.52293)	(1395	GS19	13MY1967	C.20081)
(1396	GS20	13MY1967	0.01332)	(1397	GS21	13MY1967	0.00523)	(1398	GS22	14MY1967	1.41482)
(1554	GS 1	30C1967	0.26329)	(1555	GS 2	30C1967	0.12712)	(1556	GS 3	30C1967	C.09386)
(1557	GS 4	30C1967	0.17937)	(1558	GS 5	4OC1967	0.06739)	(1559	GS 7	4OC1967	C.54207)
(1560	GS 8	4OC1967	0.19364)	(1561	GS 9	4OC1967	C.14087)	(1562	GS10	5OC1967	C.63157)
(1563	GS11	5OC1967	0.51443)	(1564	GS12	5OC1967	0.00988)	(1565	GS13	5OC1967	C.02028)
(1566	GS14	5OC1967	0.19263)	(1567	GS15	5OC1967	C.81608)	(1568	GS16	5OC1967	C.28860)
(1569	GS17	5OC1967	0.29730)	(1570	GS18	5OC1967	0.21817)	(1571	GS19	6OC1967	C.01815)
(1573	GS21	6OC1967	0.01680)	(1574	GS22	6OC1967	0.37105)	(1575	GS28	6OC1967	C.07354)
(1544	MU 1	20C1967	0.00238)	(1547	MS 1	20C1967	0.02395)	(1546	LU 1	20C1967	C.01000)
(1520	HO 1	18SE1967	0.05186)	(1521	SH 1	18SE1967	0.02308)	(1525	PW 1	20SE1967	C.02785)
(1526	MO 1	20SE1967	0.29584)	(1527	TR 1	20SE1967	0.23899)	(1528	SB 1	20SE1967	0.11551)
(1530	FR 1	24SE1967	0.25002)	(1531	GH 1	25SE1967	0.04227)	(1545	WL 1	20C1967	C.02027)
(1549	MQ 1	40C1967	0.19186)	(1551	ES 1	5OC1967	0.03994)	(1552	SM 1	60C1967	0.07923)
(1550	MR 1	50C1967	0.16107)	(1553	SG 1	6OC1967	C.02938)	(1428	MU 2	29MY1967	C.12655)
(1426	MS 2	29MY1967	0.83990)	(1351	MI 2	21AP1967	0.22964)	(1427	LU 2	29MY1967	1.41646)
(1417	HO 2	22MY1967	0.59818)	(1418	SH 2	22MY1967	1.83515)	(1350	BH 2	19AP1967	C.23568)
(1425	RA 2	25MY1967	0.50393)	(1401	MQ 2	6MY1967	0.47037)	(1402	TR 2	6MY1967	C.24908)
(1400	SB 2	6MY1967	1.14367)	(1352	KH 2	21AP1967	0.32640)	(1353	FR 2	23AP1967	0.36920)
(1354	GH 2	25AP1967	0.05006)	(1429	WL 2	29MY1967	0.19110)	(1403	CA 2	10MY1967	C.68001)
(1404	MQ 2	10MY1967	2.17226)	(1405	ES 2	12MY1967	0.16125)	(1407	SM 2	14MY1967	0.25676)
(1349	CI 2	19AP1967	0.49932)	(1406	GB 2	13MY1967	0.00270)	(1419	BU 2	23MY1967	3.51520)
(1420	IH 2	23MY1967	2.73414)	(1421	CH 2	23MY1967	2.58501)	(1422	GA 2	23MY1967	1.96189)
(1423	WA 2	25MY1967	0.82216)	(1424	KN 2	25MY1967	0.75939)	(1430	MC 2	12JN1967	0.93758)

Synedra ulna var. *longissima* (Wm. Smith) Brun

Synedra longissima Wm. Smith, Syn. British Diat., vol. 1, p. 72, pl. 12, fig. 95. 1853.
Synedra ulna var. *longissima* (Wm. Smith) Brun, Diat. Alpes Jura, p. 126, pl. 4, fig. 21. 1880.

Valves linear to linear-lanceolate with expanded, bluntly rounded ends. Frustules are often extremely elongate and many are more or less curved. Other features as in the nominate variety.

685 SYLLNAVB TOT NO OF STATIONS 3

(1568	GS16	5OC1967	0.00144)	(1403	CA 2	10MY1967	0.09154)	(1404	MQ 2	10MY1967	C.22866)

690 SYULNAVN TOT NO OF STATIONS 3

(1522	BH 1	18SE1967	0.48686)	(1531	GH 1	25SE1967	8.25021)	(1350	BH 2	19AP1967	C.C2423)

Synedra ulna var. *oxyrhynchus* (Kütz.) V. H.

Synedra oxyrhynchus Kützing, Bacill., p. 66, pl. 14, fig. 8. 1844.
Synedra ulna var. *oxyrhynchus* (Kütz.) Van Heurck, Syn. Diat. Belgique, p. 151. 1885.

Valves linear with narrowly rostrate apices. The maximum length of this entity is less than 150μ and the striae tend to be finer than in the nominate variety, usually about 14-15 in 10μ.

693 SYULNAVX TCT NO OF STATIONS 11

(46916	CH		4MY1947	0.00034)	(46506	CH		MY1947	0.00066)	(46919	CH		5JN1947	C.00303)
(46907	CH		JL1947	0.00049)	(46522	CH		21AU1947	0.00048)	(46743	EV		20JN1937	C.01285)
(1257	E	3	14JL1964	0.00239)	(1394	GS	18	13MY1967	0.00344)	(1395	GS	19	13MY1967	C.00235)
(1426	MS	2	29MY1967	0.02100)	(1427	LU	2	29MY1967	0.01211)	(				

Synedra ulna var. *spathulifera* (Grun.) V. H.

Synedra spathulifera Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 38, fig. 4. 1881.
Synedra ulna var. *spathulifera* (Grun.) Van Heurck, Syn. Diat. Belgique, p. 151. 1885.

Valves linear through most of their length, at the ends broadly expanded to a width greater than the center of the valve, then abruptly narrowed to produced, subcapitate ends. Other features of the morphology and ornamentation of the frustule are essentially similar to the nominate variety.

This entity is common in some periphyton collections from Lake Michigan. It is rarely taken in plankton collections and the specimens observed in our collections are undoubtedly derived from benthic habitats. As pointed out by other authors (Boyer 1927; Hustedt 1932) this entity is not related to the "regeneration forms" discussed above.

695 SYULNAVS TCT NO OF STATIONS 8

(46767	EV		27CC1937	0.00387)	(1258	F	1	6JL1964	0.00236)	(1567	GS	15	5OC1967	C.00159)
(1522	BH	1	18SE1967	0.00912)	(1531	GH	1	25SE1967	0.10144)	(1553	SG	1	6OC1967	C.01469)
(1417	MD	2	22MY1967	0.00374)	(1350	BH	2	19AP1967	0.00203)	(				

Species *incertae sedis*

Synedra sp. (aff. *S. hyperborea* var. *rostellata*)

674 SYHYPEVR TCT NO OF STATIONS 32

(46908	CH		DE1945	0.01007)	(46515	CH		20FE1946	0.00569)	(46916	CH		4MY1947	C.00034)
(46922	CH		21AU1947	0.00048)	(46749	EV		12MR1938	0.01214)	(46761	EV		27MY1938	C.00818)
(1441	B	6	24JL1964	0.00220)	(1257	E	3	14JL1964	0.00239)	(1258	F	1	6JL1964	C.00708)
(1259	F	2	6JL1964	0.00310)	(1260	F	3	6JL1964	0.00382)	(1264	C*	1	10AU1964	C.00193)
(1291	C*	2	16OC1964	0.00245)	(1299	E	2	12OC1964	C.00943)	(1300	E	3	13OC1964	C.00358)
(1303	E	6	13OC1964	0.00560)	(1305	F	2	11OC1964	C.00345)	(1307	B	6	NO1964	C.00361)
(1311	D	1	8NO1964	0.00516)	(1315	D	5	9NO1964	C.01365)	(1319	E	3	7NO1964	C.00524)
(1320	E	4	7NO1964	0.00620)	(1321	E	5	7NO1964	0.00638)	(1347	E	2	23AP1967	C.00656)
(1348	E	5	23AP1967	C.00137)	(1370	A	6	3MY1967	0.00460)	(1376	E	5	6MY1967	C.00281)
(1432	A	4	13JN1967	0.00255)	(1448	A	6	10JL1967	C.00354)	(1539	C	3	4OC1967	C.01006)
(1381	GS	5	10MY1967	0.00954)	(1382	GS	6	10MY1967	0.00278)	(				

Synedra sp. #7.

704 SYSPECOO TCT NO OF STATIONS 7

(46915	CH		5JN1947	C.00122)	(1236	C*	1	8JN1964	C.01050)	(1243	E	6	13JN1964	C.00209)
(1284	E	6	17SE1964	0.00318)	(1285	F	1	15SE1964	0.03494)	(1287	F	3	15SE1964	0.00500)
(1382	GS	6	10MY1967	0.00278)	(									

Synedra sp. #12.

709 SYSPECOL TCT NC OF STATIONS 1

(1315 0.5 9NO1964 0.00455) (

Synedra sp. #13.

710 SYSPECOM TCT NO OF STATIONS 1

(1258 F 1 6JL1964 0.00472) (

Synedra "capitata var. *fossilis"* (not validly described).

667 SYCAPIVF TCT NC OF STATIONS 1

(1400 SB 2 6MY1967 0.00596) (

Genus *Tabellaria* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:217. 1840.

All members of the genus *Tabellaria* reported below occur in plankton collections from Lake Michigan in abundance. The populations observed are highly variable and specific determinations are often obtained with difficulty. It appears probable that some of these variable populations may contain more than one genetic entity, however we have found no way that they can be consistently separated on the basis of morphologic characteristics visible with the light microscope. Knudson (1952) has revised the genus, largely on the basis of the type of colony formation. In our experience this is the least stable of all morphologic characteristics. Any of the entities reported below will, in some instances, adopt any or all of the colony forms reported by Knudson.

Tabellaria fenestrata (Lyngb.) Kützz.

Diatoma fenestratum Lyngbye, Tent. Hydropht. Danicae, p. 180, pl. 61, fig. E(3). 1819.
Tabellaria fenestrata (Lyngb.) Kützing, Bacill., p. 127, pl. 18, fig. 2. 1844.

Cells in girdle view elongate-rectangular with rounded ends, united by gelatinous pads at the corners into zig-zag or, more rarely, linear or stellate colonies. Usually four conspicuous septae, lying in the valvar plane, are evident. Valves elongate, linear, slightly expanded at the middle and at the ends. Expanded areas subequal, middle only slightly broader than the ends. Valves of specimens from Lake Michigan 24-134μ long, 4-8μ broad at the middle. Striae fine, 18-22 in 10μ, perpendicular to the midline throughout. Axial area narrow, linear, without any specially demarcated central area. At the ends of the valves there are pore fields composed of very fine and irregularly arranged puncta. A conspicuous slime pore is present just to one side of the axial area near the center of the valve. In some populations very fine marginal spines are present at the margins of the valve.

711 TAFENEST TCT NC OF STATIONS 320

(60973	CH		1876	9.84884)	(3540	CH	11MY1879	52.13623)	(3541	CH	1FE1881	53.07639)
(3507	CH		19FE1881	69.66266)	(46910	CH	OC1945	12.17613)	(46921	CH	23NO1945	26.46599)
(46908	CH		OE1945	37.96576)	(46517	CH	12JA1946	34.79790)	(46915	CH	20FE1946	30.14282)
(46914	CH		19AP1946	15.09508)	(46524	CH	10MY1946	8.50570)	(46923	CH	22NC1946	21.87785)
(46920	CH		20DE1946	10.85439)	(46505	CH	JA1947	29.91420)	(46909	CH	AR1947	42.02904)
(46912	CH		AP1947	11.95815)	(46516	CH	4MY1947	6.04276)	(46906	CH	MY1947	2.97666)
(46919	CH		5JN1947	3.79660)	(46507	CH	JL1947	23.87903)	(46913	CH	6AU1947	10.53237)

146922	CH		21AU1947	33.39197	146758	EV		5JN1937	11.08337	146771	EV		11JN1937	3.46156
146743	EV		20JN1937	18.22385	146745	EV		3JL1937	28.67293	146770	EV		9JL1937	39.40839
146764	EV		17JL1937	18.72682	146757	EV		25JL1937	32.62241	146747	EV		1AU1937	16.91214
146763	EV		23AU1937	26.13635	146765	EV		30AU1937	44.66257	146769	EV		7SE1937	21.88449
146752	EV		15SE1937	19.50369	146760	EV		22SE1937	18.47456	146750	EV		26SE1937	18.73969
146744	EV		6OC1937	12.01717	146748	EV		13CC1937	1.19556	146767	EV		27OC1937	6.06553
146749	EV		12MR1938	7.13675	146768	EV		16MR1938	6.58533	146762	EV		18MR1938	8.02823
146751	EV		30MR1938	4.06431	146772	EV		18AP1938	3.57700	146756	EV		27AP1938	2.16263
146759	EV		19MY1938	4.15935	146761	EV		27MY1938	15.26218	146766	EV		14DE1938	11.53359
1223	B	3	18MY1964	6.54270	1224	B	4	18MY1964	7.68552	1225	C	6	15MY1964	22.77538
1226	C	7	16MY1964	31.96346	1227	C'	2	13MY1964	40.76105	1228	D	2	14MY1964	27.79344
1229	D	5	14MY1964	26.05147	1230	E	2	16MY1964	24.23766	1231	E	3	16MY1964	8.08874
1232	E	5	16MY1964	21.12769	1233	B	3	5JN2964	25.67216	1234	B	3	18JN1964	22.66982
1235	C	7	16JN1964	41.51721	1439	B	6	5JN1964	14.68531	1236	C'	1	8JN1964	26.71007
1237	C'	2	8JN1964	34.46764	1238	D	3	11JN1964	8.96000	1239	D	4	11JN1964	22.82564
1240	D	6	10JN1964	16.42863	1241	E	2	13JN1964	12.21279	1242	E	3	13JN1964	2.51776
1243	E	6	13JN1964	17.97794	1244	F	1	11JN1964	39.52721	1245	F	2	11JN1964	45.58575
1246	F	3	11JN1964	44.34351	1247	B	3	14JL1964	34.95966	1248	B	3	24JL1964	35.58760
1440	B	6	11JL1964	19.60422	1441	B	6	24JL1964	12.79764	1249	C	3	8JL1964	32.12927
1250	C	6	10JL1964	14.10072	1251	C	7	16JL1964	40.55855	1252	C'	1	16JL1964	38.85634
1253	C'	2	16JL1964	21.24794	1254	D	2	15JL1964	8.84888	1255	D	5	15JL1964	6.46784
1256	E	2	14JL1964	23.59273	1257	E	3	14JL1964	3.01471	1258	F	1	6JL1964	19.32651
1259	F	2	6JL1964	19.73846	1260	F	3	6JL1964	25.40251	1261	B	3	2AU1964	38.46455
1262	B	3	17AU1964	14.84670	1442	B	6	2AU1964	20.30023	1443	B	6	16AU1964	9.96323
1263	C	7	15AU1964	28.58286	1264	C'	1	10AU1964	36.62727	1265	C'	2	10AU1964	30.20142
1266	D	3	18AU1964	11.54062	1267	D	6	18AU1964	43.57976	1268	E	2	15AU1964	15.12747
1269	E	3	15AU1964	5.56378	1270	F	1	10AU1964	17.91695	1444	B	6	19SE1964	11.45836
1271	C	7	22SE1964	68.55127	1272	C'	1	10SE1964	28.73209	1273	C'	2	10SE1964	21.45276
1274	D	1	17SE1964	28.90254	1275	D	2	17SE1964	23.93393	1276	D	3	18SE1964	23.46892
1277	D	4	18SE1964	49.44850	1278	D	6	18SE1964	52.99973	1279	E	1	16SE1964	28.86087
1280	E	2	16SE1964	11.91368	1281	E	3	16SE1964	8.79017	1282	E	4	16SE1964	27.14680
1283	E	5	16SE1964	18.45041	1284	E	6	17SE1964	17.57060	1285	F	1	15SE1964	11.41459
1286	F	2	15SE1964	19.15498	1287	F	3	15SE1964	19.41569	1288	B	3	15OC1964	11.73320
1445	B	6	14OC1964	46.57533	1289	C	7	14OC1964	56.94560	1290	C'	1	16OC1964	27.85674
1291	C'	2	16OC1964	39.72408	1292	D	1	15OC1964	37.04532	1293	D	2	15OC1964	47.87283
1294	D	3	15OC1964	41.07195	1295	D	4	15CC1964	40.78963	1296	D	5	14OC1964	36.73367
1297	D	6	14OC1964	51.31183	1298	E	1	12OC1964	32.42136	1299	E	2	12OC1964	31.60847
1300	E	3	13OC1964	23.80525	1301	E	4	13OC1964	17.92810	1302	E	5	13OC1964	11.62037
1303	E	6	13CC1964	25.85916	1304	F	1	11OC1964	9.50805	1305	F	2	11OC1964	8.09095
1306	F	3	11OC1964	9.89523	1307	B	6	NO1964	30.30740	1308	F	7	6NO1964	50.67064
1309	C'	1	10NO1964	15.64510	1310	C'	2	10NO1964	20.00000	1311	D	1	8NO1964	24.74072
1312	D	2	8NO1964	25.42293	1313	D	3	9NO1964	38.24324	1314	D	4	9NO1964	32.15341
1315	D	5	9NO1964	48.40764	1316	D	6	9NO1964	24.06316	1317	E	1	6NC1	24.66109
1318	E	2	7NO1964	26.50153	1319	E	3	7NO1964	21.26044	1320	E	4	7NO1964	17.55242
1321	E	5	7NO1964	16.75523	1322	E	6	7NO1964	11.43067	1323	F	1	6NO1964	9.17073
1324	F	2	6NO1964	12.55445	1325	F	3	6NO1964	27.15433	1336	C	3	27JA1967	38.58202
1337	C	3	2MR1967	8.43634	1338	C	3	28MR1967	8.97816	1339	C	5	28MR1967	21.82452
1340	C	7	28MR1967	4.47938	1341	A	3	19AP1967	15.51552	1342	A	4	19AP1967	20.21185
1343	A	6	19AP1967	1.84800	1344	C	5	25AP1967	14.93920	1345	C	5	25AP1967	12.55287
1346	C	7	21AP1967	8.13160	1347	E	2	23AP1967	8.99114	1348	E	5	23AP1967	14.77724
1368	A	3	4MY1967	17.81337	1369	A	4	4MY1967	9.91464	1370	A	6	3MY1967	14.82334
1371	C	3	4MY1967	14.86680	1372	C	5	5MY1967	12.41311	1373	C	7	5MY1967	9.18478
1374	E	2	7MY1967	10.04184	1375	E	3	7MY1967	14.99074	1376	E	5	6MY1967	24.63008
1408	A	3	23MY1967	35.56695	1409	A	4	23MY1967	25.20383	1410	A	6	24MY1967	29.99548
1411	C	3	31MY1967	19.24260	1412	C	5	31MY1967	10.31231	1413	C	7	25MY1967	7.29696
1414	E	2	28MY1967	14.10579	1415	E	3	28MY1967	11.01767	1416	E	5	28MY1967	21.12444
1431	A	3	12JN1967	34.42593	1432	A	4	13JN1967	10.01328	1433	C	3	17JN1967	23.56330
1434	C	5	17JN1967	7.74614	1435	C	7	13JN1967	11.49244	1436	E	2	15JN1967	7.09220
1437	E	5	15JN1967	4.33343	1438	E	5	14JN1967	7.87945	1446	A	3	11JL1967	27.22469
1447	A	4	11JL1967	10.64278	1448	A	6	10JL1967	62.63483	1449	C	3	16JL1967	6.15232
1450	C	5	16JL1967	8.93078	1451	C	7	16JL1967	26.59343	1452	E	2	14JL1967	16.24303
1453	E	3	15JL1967	1.50393	1454	E	5	15JL1967	36.82736	1504	A	3	28AU1967	46.48808
1505	A	4	28AU1967	31.28203	1506	A	6	29AU1967	61.51591	1508	C	3	2SE1967	42.24281
1509	C	5	2SE1967	10.24528	1510	C	7	29AU1967	48.46664	1511	E	2	1SE1967	12.67766
1512	E	3	1SE1967	4.36768	1513	E	5	31AU1967	13.47927	1532	A	3	18SE1967	36.10262
1533	A	4	19SE1967	32.49466	1534	A	6	19SE1967	31.92380	1535	C	7	20SE1967	63.99072
1536	E	2	24SE1967	25.57669	1537	E	3	24SE1967	11.77435	1538	E	5	23SE1967	37.89426
1539	C	3	4OC1967	28.52972	1540	C	5	4OC1967	39.95631	1541	E	2	11OC1967	28.68393
1543	E	5	10CC1967	42.77171	1377	GS	1	5MY1967	12.46784	1378	CS	2	9MY1967	25.14090
1379	GS	3	9MY1967	37.91161	1380	GS	4	9MY1967	39.31393	1381	GS	5	10MY1967	36.39746
1382	GS	6	10MY1967	20.98309	1383	GS	7	10MY1967	26.57185	1384	GS	8	10MY1967	18.24567
1385	GS	9	10MY1967	34.94148	1386	GS10		12MY1967	22.52226	1387	GS11		12MY1967	26.06146
1388	GS12		12MY1967	24.91704	1389	GS13		12MY1967	12.81489	1390	GS14		12MY1967	20.14091
1391	GS15		12MY1967	26.48087	1392	GS16		12MY1967	15.10155	1393	GS17		13MY1967	21.47710
1394	GS18		13MY1967	13.72691	1395	GS19		13MY1967	2.87714	1396	GS20		13MY1967	0.06289
1397	GS21		13MY1967	0.64097	1398	GS22		14MY1967	37.82979	1554	CS	1	3CC1967	15.52456
1555	CS	2	3CC1967	24.71751	1556	GS	3	3CC1967	40.15225	1557	GS	4	3CC1967	14.91031
1558	GS	5	4CC1967	11.93119	1559	GS	7	4DC1967	14.93320	1560	GS	8	4CC1967	18.18353
1561	GS	9	4CC1967	29.17180	1562	GS10		5DC1967	23.31375	1563	CS11		5DC1967	20.62386
1564	GS12		5CC1967	8.87155	1565	GS13		9DC1967	3.90427	1566	GS14		5DC1967	18.56577
1567	GS15		5DC1967	22.67242	1568	GS16		5DC1967	2.82824	1569	GS17		5DC1967	6.02511
1570	GS18		5CC1967	8.93002	1571	GS19		6DC1967	1.59811	1572	CS20		6DC1967	0.05047
1573	GS21		6CC1967	0.26206	1574	GS22		6DC1967	24.96692	1575	CS23		6DC1967	1.08376
1544	MU	1	2CC1967	0.15012	1547	MS	1	2DC1967	5.23752	1524	MI	1	20SE1967	38.87915
1546	LU	1	2CC1967	1.66056	1520	MO	1	18SE1967	15.61601	1521	SH	1	18SE1967	5.90615
1522	BM	1	18SE1967	0.00912	1523	RA	1	19SE1967	17.12177	1525	FW	1	20SE1967	47.68138
1526	MO	1	20SE1967	5.27983	1527	TR	1	20SE1967	1.91195	1528	SB	1	2CSE1967	30.03175
1529	KW	1	20SE1967	6.52356	1530	PR	1	24SE1967	11.52115	1531	CH	1	25SE1967	1.75824
1545	WL	1	2DC1967	2.91912	1548	CA	1	3DC1967	7.32731	1549	PG	1	4CC1967	21.70755
1551	ES	1	5CC1967	3.49075	1552	SP	1	6CC1967	0.66689	1550	MR	1	5DC1967	2.77537
1553	SG	1	6DC1967	0.41863	1428	MU	2	29MY1967	1.01238	1426	PS	2	29MY1967	10.75066
1351	MI	2	21AP1967	1.39022	1427	LU	2	29MY1967	17.62711	1417	MO	2	22MY1967	3.40960
1418	SH	2	22MY1967	35.83203	1350	BM	2	19AP1967	0.35242	1425	RA	2	25MY1967	17.11607
1399	PW	2	5MY1967	8.70511	1401	MO	2	6MY1967	5.20811	1402	TR	2	6MY1967	4.85163
1400	SB	2	6MY1967	6.67143	1352	KW	2	21AP1967	6.32194	1353	FR	2	23AP1967	46.24472
1354	GM	2	25AP1967	0.66281	1429	WL	2	29MY1967	5.26595	1403	CA	2	10MY1967	22.17862
1404	MQ	2	10MY1967	21.12820	1405	ES	2	12MY1967	7.32714	1407	SP	2	14MY1967	6.68776
1349	CI	2	19AP1967	2.64387	1419	BU	2	23MY1967	33.98022	1420	IH	2	23MY1967	35.39577
1421	CH	2	23MY1967	36.64122	1422	GA	2	23MY1967	35.72267	1423	WA	2	25MY1967	18.77274
1424	KN	2	25MY1967	17.05301	1430	MC	2	12JN1967	72.63754					

Tabellaria fenestrata var. *geniculata* A. Cleve

Tabellaria fenestrata var. *geniculata* A. Cleve, Ofv. K. Svenska Vet.-Akad. Forhandl., 8:831, fig. 1-5. 1899.

Distinguished from the nominate variety by valves which are rather strongly bent in the apical axis. In most specimens the mid portion of the valve is more strongly expanded on the side opposite the arc of the ends. This entity is highly variable in both frustule structure and colony formation. The valves are often somewhat constricted near the central and terminal expansions. Perhaps best treated as a separate species of subspecies (Skabitschewsky 1960).

(12 TAPENEVG TCI AC CF STATIONS 228

(6C973	CH		1876	0.02362	(3540	CH		11MY1875	C.40069	(3541	CH		1FE1881	C.44018
(3507	CH		19FE1881	0.29432	(46510	CH		0C1945	0.00218	(46921	CH		23ND1945	C.00259
(46917	CH		12JA1946	0.01636	(46515	CH		20FE1946	0.05121	(46914	CH		19AP1946	C.00214
(46924	CH		10MY1946	0.00141	(46523	CH		22ND1946	0.00219	(46920	CH		20DE1946	C.00062
(46905	CH		JA1947	C.00123	(46509	CH		MR1947	0.01821	(46912	CH		AP1947	C.C1150
(46916	CH		4MY1947	0.00068	(46519	CH		5JN1947	C.00303	(469C7	CH		JL1947	C.04586
(46922	CH		21AU1947	0.01551	(46758	EV		5JN1937	0.00357	(46771	EV		11JN1937	C.CC238
(46743	EV		20JN1937	0.01713	(46745	EV		3JL1937	0.04180	(46770	EV		9JL1937	C.03578
(46764	EV		17JL1937	0.00806	(46757	EV		25JL1937	0.05296	(46747	EV		1AU1937	C.CC743
(46765	EV		30AU1937	0.02231	(46767	EV		27OC1937	C.00387	(46761	EV		27MY1938	C.CC545
(1223	B 3		18MY1964	0.CC156	(1224	B 4		18MY1964	C.C0196	(1225	C 6		15MY1964	C.CC392
(1226	C 7		16MY1964	0.01142	(1227	C* 2		13MY1964	0.00548	(1228	D 2		14MY1964	C.CC913
(1229	D 5		14MY1964	0.03806	(1230	E 2		16MY1964	0.00889	(1231	E 3		18MY1964	C.C2201
(1232	E 5		16MY1964	C.C6261	(1233	B 3		5JN2964	0.01667	(1234	B 3		18JN1964	C.C2530
(1235	C 7		16JN1964	0.01130	(1439	B 6		5JN1964	0.00799	(1236	C* 1		8JN1964	C.CC525
(1237	C* 2		8JN1964	0.00258	(1239	D 4		11JN1964	C.02321	(1240	D 6		10JN1964	C.CC153
(1241	E 2		13JN1964	0.00444	(1242	E 3		13JN1964	C.C0150	(1243	E 6		13JN1964	C.01879
(1244	F 1		11JN1964	0.02193	(1245	F 2		11JN1964	C.01C37	(1246	F 3		11JN1964	C.C2588
(1247	B 3		14JL1964	0.02134	(1248	B 3		24JL1964	0.01379	(1440	B 6		11JL1964	C.C1843
(1441	B 6		24JL1964	0.01762	(1249	C 3		8JL1964	C.C0815	(1250	C 6		10JL1964	C.C1644
(1251	C 7		16JL1964	0.00579	(1252	C* 1		16JL1964	0.08647	(1253	C* 2		16JL1964	C.C3880
(1254	D 2		15JL1964	0.01341	(1255	D 5		15JL1964	C.01797	(1256	E 2		14JL1964	C.CC550
(1257	E 3		14JL1964	0.00718	(1258	F 1		6JL1964	C.02360	(1259	F 2		6JL1964	C.02789
(1260	F 3		6JL1964	0.05348	(1261	B 3		2AU1964	0.00589	(1262	B 3		17AU1964	C.C8190
(1442	B 6		2AU1964	0.02388	(1443	B 6		16AU1964	0.00593	(1264	C* 1		10AU1964	C.13516
(1265	C* 2		10AU1964	0.1073C	(1266	D 3		18AU1964	C.04911	(1267	D 6		18AU1964	C.08214
(1268	E 2		15AU1964	C.C46SC	(1269	E 3		15AU1964	0.02193	(1270	F 1		1CAU1964	C.07352
(1444	B 6		19SE1964	0.0C905	(1271	C 7		22SE1964	C.01306	(1272	C* 1		10SE1964	C.25859
(1273	C* 2		1CSE1964	C.09678	(1274	D 1		17SE1964	C.36128	(1275	D 2		17SE1964	C.24515
(1276	D 3		18SE1964	C.C6705	(1277	D 4		18SE1964	C.05577	(1278	D 6		18SE1964	C.22676
(1279	E 1		16SE1964	0.54972	(1280	E 2		16SE1964	C.10212	(1281	F 3		16SE1964	C.05494
(1282	E 4		16SE1964	0.06648	(1283	E 5		16SE1964	0.06743	(1284	E 6		17SE1964	C.CE355
(1285	F 1		15SE1964	C.48337	(1286	F 2		15SE1964	C.52539	(1287	F 3		15SE1964	C.45536
(1288	B 3		15DC1964	0.01306	(1445	B 6		14DC1964	0.03588	(1289	C 7		14DC1964	C.03076
(1290	C* 1		16DC1964	C.06822	(1291	C* 2		16DC1964	C.01712	(1292	D 1		15DC1964	C.C2609
(1293	D 2		15DC1964	0.03302	(1294	D 3		15DC1964	C.C1319	(1295	D 4		15DC1964	C.02378
(1296	D 5		14DC1964	C.C1967	(1297	D 6		14DC1964	C.01333	(1298	E 1		12DC1964	0.02154
(1299	E 2		12DC1964	0.04084	(1300	E 3		13DC1964	0.02148	(1301	E 4		13DC1964	C.C5741
(1302	E 5		13DC1964	0.02429	(1303	E 6		13DC1964	C.00*60	(1304	F 1		11DC1964	0.03704
(1305	F 2		11DC1964	0.03105	(1306	F 3		11DC1964	C.03403	(1307	B 6		ND1964	C.21287
(1308	C 7		6ND1964	C.04562	(1309	C* 1		10ND1964	C.14150	(1310	C* 2		10NC1964	C.11338
(1311	D 1		8ND1964	0.05160	(1312	D 2		8ND1964	C.09002	(1313	D 3		9NC1964	0.02896
(1314	D 4		9ND1964	0.04306	(1315	D 5		9NC1964	0.03185	(1316	D 6		9NC1964	C.C1133
(1317	E 1		6ND1964	0.08042	(1318	E 2		7ND1964	C.05327	(1319	E 3		7NC1964	C.01047
(1320	E 4		7ND1964	0.03102	(1321	E 5		7ND1964	C.02554	(1322	E 6		7NC1964	C.C1333
(1323	F 1		6ND1964	0.05854	(1324	F 2		6ND1964	0.04891	(1325	F 3		6ND1964	C.C3778
(1337	C 3		2MR1967	0.0C147	(1338	C 3		28MR1967	C.00264	(1340	C 7		28MR1967	C.CC218
(1342	A 4		19AP1967	C.CC180	(1343	A 6		19AP1967	C.00069	(1345	C 5		25AP1967	C.CC195
(1346	C 7		21AP1967	0.00534	(1347	E 2		23AP1967	0.00163	(1348	E 5		23AP1967	C.CC548
(1368	A 3		4MY1967	0.00628	(1371	C 3		4MY1967	C.00462	(1375	E 3		7MY1967	0.00241
(1376	E 5		6MY1967	0.01687	(1409	A 4		23MY1967	C.00298	(1410	A 6		24MY1967	C.C1128
(1411	C 3		31MY1967	0.00410	(1414	E 2		28MY1967	0.00336	(1415	E 3		28MY1967	C.CC225
(1416	E 5		28MY1967	0.00219	(1438	E 5		14JN1967	C.C0363	(1446	A 3		11JL1967	C.CC734
(1448	A 6		10JL1967	C.CC354	(1449	C 3		16JL1967	0.14903	(1450	C 5		16JL1967	C.CC190
(1451	C 7		16JL1967	0.00394	(1452	E 2		14JL1967	C.00213	(1453	E 3		15JL1967	C.00253
(1454	E 5		15JL1967	0.03601	(1504	A 3		28AU1967	C.00741	(1509	C 5		2SE1967	C.01514
(1510	C 7		29AU1967	0.00632	(1511	E 2		1SE1967	0.04298	(1512	E 3		1SE1967	C.C6675
(1513	E 5		31AU1967	0.29898	(1534	A 6		19SE1967	C.C0931	(1535	C 7		20SE196	C.00322
(1536	E 2		24SE1967	C.22632	(1537	E 3		24SE1967	0.31916	(1538	E 5		23SE1967	C.C3867
(1540	C 5		4CC1967	C.00496	(1541	E 2		11OC1967	C.22883	(1542	E 3		11OC1967	C.18308
(1543	E 5		10CC1967	C.CC718	(1377	GS 1		6MY1967	C.00396	(1378	CS 2		9MY1967	C.01262
(1379	GS 3		9MY1967	C.04023	(1380	CS 4		9MY1967	C.06558	(1381	CS 5		10MY1967	C.C7632
(1382	GS 6		10MY1967	0.06661	(1383	GS 7		10MY1967	0.07218	(1384	CS 8		10MY1967	C.01294
(1385	GS 9		10MY1967	C.03296	(1386	GS10		12MY1967	C.02585	(1387	CS11		12MY1967	C.C4357
(1388	GS12		12MY1967	0.03017	(1389	GS13		12MY1967	C.01289	(1390	CS14		12MY1967	C.CC587
(1391	GS15		12MY1967	0.00958	(1393	GS17		13MY1967	C.00274	(1398	CS22		14MY1967	C.C1214
(1554	GS 1		3DC1967	C.26329	(1555	GS 2		3CC1967	C.01794	(1556	CS 3		3DC1967	C.C1043
(1557	GS 4		3CC1967	C.02990	(1558	GS 5		4DC1967	C.03567	(1559	CS 7		4DC1967	C.16087
(1560	GS 8		4CC1967	C.11335	(1561	GS 9		4DC1967	C.10565	(1562	CS10		5DC1967	C.01727
(1563	GS11		5CC1967	C.01637	(1564	GS12		5DC1967	C.00165	(1567	CS15		5DC1967	C.C2382
(1568	GS16		5CC1967	C.00144	(1569	GS17		5GC1967	C.00297	(1570	CS18		5DC1967	C.C1982
(1571	GS19		6CC1967	C.00059	(1574	GS22		6DC1967	C.03164	(1567	PS 1		2DC1967	C.C3992
(1546	LU 1		2CC1967	C.01000	(1526	MC 1		20SE1967	C.00589	(1528	SB 1		20SE1967	C.C1444
(1530	FR 1		24SE1967	C.24002	(1545	BL 1		2DC1967	C.00676	(1549	PC 1		4CC1967	C.C4111
(1427	LU 2		24MY1967	0.01211	(1352	KW 2		21AP1967	0.00859	(1404	PG 2		10MY1967	C.12703
(1405	ES 2		12MY1967	0.00645	(1421	CH 2		23MY1967	C.01735	(1422	CA 2		23MY1967	C.CC511

Tabellaria fenestrata var. *intermedia* Grun.

Tabellaria fenestrata var. *intermedia* Grunow *in*: Van Heurck, Syn. Diat. Belgique, pl. 52, fig. 6-8. 1881.

Distinguished from the nominate variety by its shorter valves which are usually much wider in girdle view and which usually contain more than 4 septae. Maximum length of observed specimens less than 100µ. Perhaps best treated as a separate species.

713 TAFENEVI TCT NC CF STATIONS 29

(3540	CH	11MY1879	0.07455)	(3541	CH	1FE1881	0.03913)	(46912	CH	AP1947	C.C115C)
146919	CH	5JN1947	0.00303)	(1449	C 3	16JL1967	C.03439)	(1454	E 5	15JL1967	C.CC200)
(1511	E 2	15E1967	0.00614)	(1513	E 5	31AL1967	C.02027)	(1537	E 3	24SE1967	C.CC863)
(1541	E 2	11CC1967	C.CC532)	(1542	E 3	11CC1967	C.01017)	(1380	GS 4	9MY1967	C.CC336)
(1381	GS 5	10MY1967	0.CC239)	(1382	GS 6	10MY1967	0.00278)	(1386	GS10	12MY1967	C.CC575)
(1388	GS12	12MY1967	0.01207)	(1389	GS13	12MY1967	C.00516)	(1393	GS17	13MY1967	C.CC274)
(1554	GS 1	3DC1967	0.0035e)	(1555	GS 2	3CC1967	0.01412)	(1556	GS 3	3DC1967	C.0C521)
(1557	GS 4	3CC1967	0.00374)	(1558	GS 5	4DC1967	C.00793)	(1559	GS 7	4DC1967	C.01049)
(1560	GS 8	4DC1967	0.00745)	(1574	GS22	6DC1967	C.00288)	(1547	PS 1	20C1967	C.0C798)
(1548	CA 1	3CC1967	C.01272)	(1245	CI 2	15AP1967	C.00359)	(			

Tabellaria flocculosa (Roth) Kützing.

Conferva flocculosa Roth, Catalecta Bot., Fasc. 1, p. 192, pl. 4, fig. 4; pl. 5, fig. 6. 1797.
Tabellaria flocculosa (Roth) Kützing, Bacill., p. 127, pl. 17, fig. 21. 1844.

Cells in girdle view short, rectangular with rounded ends, united by gelatinous pads at the corners into zig-zag colonies. Usually more than 8 conspicuous septae, lying in the valvar plane, are evident in each cell. Valves linear, strongly expanded at the middle and less expanded at the ends. Valves often slightly asymmetric to the transverse axis, being wider at one side of the central expansion than at the other. Valves of specimens from Lake Michigan 15-65µ long, 7-12µ broad at the widest extremity. Striae fine, perpendicular to the midline throughout, 18-20 in 10µ. Axial area narrow, linear, in some instances lanceolately widened at the middle of the valve. At the ends of the valves there are pore fields composed of very fine, irregularly arranged puncta. A conspicuous slime pore is present, usually lying to one side of the axial area at about the level of the beginning of the central expansion. In asymmetric valves the slime pore is usually toward the broader end of the valve. In some populations fine marginal spines are present at the ends of the valves.

714 TAFLCGCU TCT NC CF STATIONS 316

(60973	CH	1876	1.62966)	(3540	CH	11MY1879	17.06192)	(3541	CH	1FE1881	14.47716)
(3507	CH	15FE1881	7.99185)	(46510	CH	DC1965	C.78101)	(46921	CH	23NO1945	1.87C28)
(46908	CH	DE1945	5.23666)	(46517	CH	12JA1946	3.15362)	(46915	CH	20FE1946	4.62642)
(46914	CH	15AP1946	3.50443)	(46524	CH	10MY1946	2.24688)	(46923	CH	22NO1946	4.E3018)
(46920	CH	20DE1946	2.12282)	(46505	CH	JA1947	8.16644)	(46909	CH	MR1947	8.87938)
(46912	CH	AP1947	2.98954)	(46516	CH	MY1947	1.10269)	(46906	CH	MY1947	C.5e082)
(46919	CH	5JN1947	0.78906)	(46507	CH	JL1947	4.87196)	(46913	CH	6AU1947	C.C5230)
(46922	CH	21AU1947	3.42370)	(46758	EV	5JN1937	3.19521)	(46771	EV	11JN1937	2.2e332)
(46743	EV	20JN1937	5.27533)	(46745	EV	3JL1937	12.87356)	(46770	EV	9JL1937	18.53529)
(46764	EV	17JL1937	11.0556C)	(46757	EV	25JL1937	7.00977)	(46747	EV	1AU1937	2.77248)
(46763	EV	23AU1937	4.54545)	(46765	EV	30AU1937	12.18070)	(46766	EV	7SE1937	1C.94225)
(46752	EV	15SE1937	4.48411)	(46760	EV	22SE1937	4.27397)	(46750	EV	24SE1937	9.23787)
(46744	EV	6CC1937	2.73117)	(46748	EV	13DC1937	C.44833)	(46767	EV	27CC1937	2.92445)
(46749	EV	12MR1938	4.41801)	(46768	EV	16MR1938	1.96972)	(46762	EV	18MR1938	2.24967)
(46751	EV	30MR1938	2.07682)	(46772	EV	18AP1938	3.37828)	(46756	EV	27AP1938	C.85326)
(46755	EV	19MY1938	1.98514)	(46761	EV	27MY1938	3.96817)	(46766	EV	14DE1938	0.65395)
(1223	B 3	18MY1964	13.01664)	(1224	B 4	18MY1964	4.39173)	(1225	C 6	15MY1964	3.5e723)
(1226	C 7	16MY1964	6.12633)	(1227	C* 2	13MY1964	7.82981)	(1228	D 2	14MY1964	4.06727)
(1229	D 5	14MY1964	6.66089)	(123C	E 2	16MY1964	7.C5290)	(1231	E 3	16MY1964	5.82135)
(1232	E 5	16MY1964	6.4524C)	(1233	B 3	5JN2964	21.17119)	(1234	B 3	18JN1964	15.54129)
(1235	C 7	16JN1964	23.72412)	(1439	B 6	5JN1964	13.84615)	(1236	C* 1	8JN1964	22.85203)
(1237	C* 2	8JN1964	11.36891)	(1238	D 3	11JN1964	2.66000)	(1239	D 4	11JN1964	13.32173)

1240	D 6	10JN1964	12.34833	1241	E 2	13JN1964	11.07431	1242	E 3	13JN1964	1.78241
1243	F 6	13JN1964	13.30076	1244	F 1	11JN1964	17.49942	1245	F 2	11JN1964	22.26678
1246	F 3	11JN1964	19.24341	1247	B 3	14JL1964	13.44602	1248	B 3	24JL1964	12.00047
1440	B 6	11JL1964	14.44522	1441	B 6	24JL1964	5.55968	1249	C 3	8JL1964	14.25855
1250	C 6	10JL1964	14.10072	1251	C 7	16JL1964	38.29990	1252	C* 1	16JL1964	23.43095
1253	C* 2	16JL1964	14.05879	1254	D 2	15JL1964	4.82666	1255	D 5	15JL1964	2.8746C
1256	E 2	14JL1964	4.2317C	1257	E 3	14JL1964	2.17729	1258	F 1	6JL1964	12.22361
1259	F 2	6JL1964	13.23128	1260	F 3	6JL1964	12.83496	1261	B 3	2AU1964	11.67674
1262	B 3	17AU1964	5.73288	1442	B 6	2AU1964	19.10609	1443	B 6	16AU1964	5.25837
1263	C 7	15AU1964	8.68695	1264	C* 1	10AU1964	2C.94917	1265	C* 2	10AU1964	10.79740
1266	D 3	18AU1964	3.19209	1267	D 6	18AU1964	16.49373	1268	E 2	15AU1964	4.55569
1269	E 3	15AU1964	0.64134	1270	F 1	10AU1964	11.24574	1444	B 6	19SE1964	2.5463C
1271	C 7	22SE1964	20.56538	1272	C* 1	10SE1964	11.49284	1273	C* 2	10SE1964	8.28001
1274	D 1	17SE1964	10.51002	1275	D 2	17SE1964	9.48326	1276	D 5	18SE1964	5.38757
1277	D 4	18SE1964	15.61532	1278	D 6	18SE1964	25.28920	1279	E 1	16SE1964	14.84274
1280	E 2	16SE1964	8.57785	1281	E 3	16SE1964	3.57101	1282	E 4	16SE1964	10.C8310
1283	E 5	16SE1964	7.72343	1284	E 6	17SE1964	9.11893	1285	F 1	15SE1964	7.74562
1286	F 2	15SE1964	8.42820	1287	F 3	15SE1964	8.75700	1288	B 3	15OC1964	7.44659
1445	B 6	14OC1964	18.94977	1289	C 7	14OC1964	2C.CC790	1290	C* 1	16OC1964	6.63256
1291	C* 2	16OC1964	11.98571	1292	D 1	19OC1964	13.56589	1293	D 2	15OC1964	15.84756
1294	D 3	15OC1964	15.22893	1295	D 4	15OC1964	18.72992	1296	D 5	14OC1964	19.0C302
1297	D 6	14OC1964	21.59094	1298	E 1	12CC1964	17.34166	1299	E 2	12OC1964	12.75526
1300	E 3	13OC1964	9.27152	1301	E 4	13OC1964	6.90032	1302	E 5	13OC1964	6.51875
1303	E 6	13OC1964	21.94112	1304	F 1	11DC1964	4.49471	1305	F 2	11OC1964	4.46814
1306	F 3	11OC1964	2.71634	1307	B 6	NO1964	18.43700	1308	C 7	6ND1964	22.14178
1309	C* 1	10ND1964	4.07795	1310	C* 2	10ND1964	6.98413	1311	D 1	8NC1964	6.68180
1312	D 2	8ND1964	8.47431	1313	D 3	9ND1964	1C.54054	1314	D 4	9NC1964	14.06712
1315	D 5	9ND1964	13.05732	1316	D 6	9NC1964	2C.C9669	1217	E 1	6ND1964	8.04166
1318	E 2	7ND1964	9.45532	1319	E 3	7ND1964	5.86495	1320	E 4	7ND1964	7.52844
1321	E 5	7ND1964	6.48024	1322	E 6	7ND1964	8.53181	1323	F 1	6NC1964	7.9C244
1324	F 2	6ND1964	9.96746	1325	F 3	6ND1964	17.28003	1336	C 3	27JA1967	7.27861
1337	C 3	2MR1967	4.42393	1338	C 3	28MR1967	4.16512	1339	C 5	28MR1967	8.29332
1340	C 7	28MR1967	1.98518	1341	A 3	19AP1967	6.15081	1342	A 4	19AP1967	5.81091
1343	A 6	19AP1967	1.26442	1344	C 3	25AP1967	3.24262	1345	C 5	25AP1967	2.18311
1346	C 7	21AP1967	1.68240	1348	E 5	23AP1967	4.22207	1368	A 3	4MY1967	6.37763
1369	A 4	4MY1967	1.30456	1370	A 6	3MY1967	5.96156	1371	C 3	4MY1967	3.39351
1372	C 5	5MY1967	3.22741	1373	C 7	5MY1967	C.49917	1374	E 2	7MY1967	4.81172
1375	E 3	7MY1967	5.05306	1376	E 5	6MY1967	10.23162	1408	A 3	23MY1967	13.77279
1409	A 4	23MY1967	5.4157C	1410	A 6	24MY1967	5.92016	1411	C 3	31MY1967	7.75448
1412	C 5	31MY1967	2.94638	1413	C 7	25MY1967	5.C8576	1414	E 2	28MY1967	4.93703
1415	E 3	28MY1967	3.93488	1416	E 5	28MY1967	4.13304	1431	A 3	12JN1967	11.53535
1432	A 4	13JN1967	3.59736	1433	C 3	17JN1967	17.63338	1434	C 5	17JN1967	3.97775
1435	C 7	13JN1967	5.76622	1436	E 2	15JN1967	3.03951	1446	A 3	11JL1967	13.52676
1447	A 4	11JL1967	3.60217	1448	A 6	10JL1967	11.88329	1449	C 3	10JL1967	1.33746
1450	C 5	10JL1967	2.39931	1451	C 7	10JL1967	9.09413	1452	E 2	14JL1967	5.81173
1453	E 3	15JL1967	0.25782	1454	E 5	15JL1967	11.76235	1504	A 3	28AU1967	10.54191
1505	A 4	28AU1967	4.32856	1506	A 6	29AU1967	9.52032	1508	C 3	25E1967	1C.35C89
1509	C 5	25E1967	3.05844	1510	C 7	29AU1967	8.18843	1511	E 2	15E1967	4.08263
1512	E 3	15E1967	C.46725	1513	E 5	31AU1967	7.C9435	1532	A 3	18SE1967	6.2C873
1533	A 4	19SE1967	7.14882	1534	A 6	19SE1967	8.90392	1535	C 3	20SE1967	12.84321
1536	E 2	24SE1967	6.48961	1537	E 3	24SE1967	C.60381	1538	E 5	23SE1967	6.96017
1539	C 3	4CC1967	6.69216	1540	C 5	4CC1967	9.72849	1541	E 2	11OC1967	6.7C534
1542	E 3	11CC1967	C.37632	1543	E 5	10CC1967	9.55322	1377	GS 1	5MY1967	6.09539
1378	GS 2	9MY1967	12.95152	1379	GS 3	9MY1967	14.93066	1380	GS 4	9MY1967	15.77266
1381	GS 5	10MY1967	15.52736	1382	GS 6	10MY1967	6.99436	1383	GS 7	10MY1967	11.22754
1384	GS 8	10MY1967	6.98771	1385	GS 9	10MY1967	10.71319	1386	GS10	12MY1967	9.22838
1387	GS11	12MY1967	4.99049	1388	GS12	12MY1967	6.75716	1389	GS13	12MY1967	3.60983
1390	GS14	12MY1967	4.52143	1391	GS15	12MY1967	6.03362	1392	GS16	12MY1967	3.23605
1393	GS17	13MY1967	4.21872	1394	GS18	13MY1967	1.68578	1395	GS19	13MY1967	C.45212
1396	GS20	13MY1967	0.00666	1397	GS21	13MY1967	0.02224	1398	GS22	16MY1967	7.65097
1554	GS 1	30CC1967	8.71700	1555	GS 2	30CC1967	8.85114	1556	GS 3	30CC1967	14.45981
1557	GS 4	30CC1967	3.4006C	1558	GS 5	4CC1967	6.65927	1559	GS 7	4CC1967	8.80978
1560	GS 8	4CC1967	12.56317	1561	GS 9	4CC1967	18.48917	1562	GS10	5CC1967	8.63473
1563	GS11	5CC1967	9.16816	1564	GS12	5CC1967	2.30430	1565	GS13	5CC1967	C.70987
1566	GS14	5CC1967	5.13667	1567	GS15	5CC1967	7.11292	1568	GS16	5CC1967	C.17171
1569	GS17	5CC1967	1.24864	1570	GS18	5CC1967	1.24950	1571	GS19	6CC1967	C.00761
1572	GS20	6CC1967	0.01172	1573	GS21	6CC1967	C.C1568	1574	GS22	6CC1967	7.65115
1575	GS28	6CC1967	0.16385	1544	MU 1	2CC1967	0.00953	1547	PS 1	20C1967	2.29940
1524	PI 1	20SE1967	10.45814	1546	LL 1	2CC1967	C.21508	1520	PC 1	18SE1967	4.67726
1521	SH 1	18SE1967	1.75398	1522	BM 1	18SE1967	0.00182	1523	PA 1	19SE1967	6.49446
1525	PW 1	20SE1967	14.62826	1526	MD 1	20SE1967	3.18598	1527	TR 1	20SE1967	C.58491
1528	SB 1	20SE1967	9.70297	1529	KW 1	20SE1967	2.87804	1530	FR 1	24SE1967	4.18042
1531	GH 1	25SE1967	C.18597	1545	WL 1	2CC1967	C.32435	1548	CA 1	3CC1967	2.25698
1549	MO 1	4DC1967	10.52487	1551	ES 1	5DC1967	C.87068	1552	SM 1	6DC1967	C.37636
1550	PR 1	9CC1967	C.39648	1553	SG 1	6CC1967	C.23502	1428	PU 2	29PY1967	C.62671
1426	PS 2	29MY1967	3.19160	1351	MI 2	21AP1967	C.79441	1427	LU 2	26MY1967	8.71671
1417	PD 2	22MY1967	2.39270	1418	SP 2	22MY1967	17.16551	1350	PH 2	19AP1967	C.C7929
1425	RA 2	25MY1967	9.76041	1399	PW 2	5MY1967	4.67900	1401	MC 2	6MY1967	2.08961
1402	TR 2	6MY1967	1.99264	1400	SB 2	6MY1967	3.52633	1352	RW 2	21AP1967	2.C4150
1353	FR 2	23AP1967	11.84557	1356	GH 2	25AP1967	C.06041	1429	WL 2	29MY1967	2.71791
1403	CA 2	10MY1967	11.92626	1404	MC 2	10MY1967	11.58537	1405	ES 2	12MY1967	3.92157
1407	SM 2	14MY1967	3.34588	1349	CI 2	19AP1967	1.26446	1419	BU 2	23MY1967	12.88905
1420	IM 2	23MY1967	10.85196	1421	CH 2	23MY1967	13.60167	1422	CA 2	23MY1967	17.85669
1423	WA 2	25MY1967	8.90678	1424	MA 2	25MY1967	6.39488	1430	PC 2	12JN1967	14.18953

Genus *Thalassiosira* Cleve

Cleve, Bih. K. Svenska Vet.-Akad. Handl., 1(13):6. 1873.

Members of the genus *Thalassiosira* find their primary habitat in marine and brackish-water plankton communities. The species occurring in Lake Michigan are usually associated with areas receiving considerable chloride contamination.

Thalassiosira fluviatilis Hust.

Thalassiosira fluviatilis Hustedt, Ber. Deutsch. Bot. Ges., 43:565, figs. 1-4. 1926.

Cells short cylindric with either concave or convex valve faces. Specimens from Lake Michigan 12-27μ in diameter. Ornamentation of the valve surface composed of fine areolae which are arranged in single, more or less sinuous, rows of varying lengths. A corona of short submarginal spines, about 14 in 10μ, is present and in addition a single (very rarely 2 or 3) much larger spine arises just interior to the level of the smaller spines. Usually 2-5 more or less conspicuous slime pores occur around the center of the valve about one-fourth the distance from the center to the edge of the valve.

Previous records indicate that this species is a halophilous freshwater form of wide distribution. It is occasionally in samples from regions of Lake Michigan subjected to chloride contamination. In rare instances it occurs in considerable abundance.

715 TMFLUVIA TCT AC OF STATIONS 4

(1544	MU 1	2CC1967	0.00238)	(1522	BH 1	18SE1967	0.11123)	(1531	GH 1	25SE1967	0.02536)
(1350	BH 2	15AP1967	0.00220)	(							

Thalassiosira levanderi Van Goor

Thalassiosira levanderi Van Goor, Rec. Trav. Bot. Néerlandis, 21:322, fig. 11. 1924.

Cells cylindrical with slightly convex valve surfaces, specimens from Lake Michigan 8-19μ in diameter. Ornamentation of the valve surface composed of irregularly-arranged areolae, about 20-22 in 10μ near the center of the valve, becoming finer near the margins. At the margins of the valve there is a corona of spines, about 10 in 10μ. These spines appear to be of two varieties, larger, tubular spines rather evenly spaced with 3-4 smaller, apparently solid spines between. Two to three conspicuous slime pores occur near the center of the valve.

Only occasional specimens of this entity have been noted in collections from Lake Michigan.

Coll: 1197.

Thalassiosira visurgis Hust.

Thalassiosira visurgis Hustedt, Abh. Naturw. Ver. Bremen, 34(3):207, pl. 1, figs. 1-4. 1957.

Cells cylindric with slightly convex valve faces. Specimens from Lake Michigan 14-23μ in diameter. Ornamentation of the valve surface composed of more or less radially-arranged areolae, about 16 in 10μ near the center of the valve, becoming slightly finer near the margins. A submarginal corona of small spines, 14-15 in 10μ, is present and in addition 2 (rarely 1-4) much larger spines arise just interior to the circlet of smaller spines. These spines are usually about 120° from one another. Usually a single slime pore is present near the geometric center of the valve.

The limited number of previous reports available indicates that this entity occurs in inland waters of relatively high dissolved solids content as well as in brackish water.

717 THSPECCA TCT AC CF STATICAS 12

(1317	E 1	6NO1964	0.0C191)	(1557	GS 4	3CC1967	C.00747)	(1559	CS 7	4CC1967	C.CC350)
(1560	GS 8	4CC1967	0.00472)	(1563	GS11	5CC1967	0.00234)	(1575	GS28	6CC1967	C.CC129)
(1549	MU 1	2CC1967	0.00238)	(1531	GH 1	25SE1967	C.20287)	(1545	WL 1	2CC1967	C.CC676)
(1548	CA 1	3CC1967	0.01272)	(14C1	MC 2	6MY1967	C.00588)	(1422	CA 2	23MY1967	C.CC511)

Genus *Tropidoneis* Cleve
Cleve, Diatomist, 1:22. 1890.

Although most members of the genus *Tropidoneis* are restricted to marine or brackish-water habitats, the single representative that occurs in our collections is widely reported from strictly freshwater situations. It reaches its maximum abundance in benthic communities but apparently adopts planktonic existence with facility and is often taken in plankton collections.

Tropidoneis lepidoptera var. *proboscidea* Cleve

Tropidoneis lepidoptera var. *proboscidea* Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):25. 1894.

718 TRLEFIVP TCT AC CF STATICAS 5

146750	EV	24SE1937	0.0C471)	146762	EV	18MR1938	C.02206)	(1571	CS19	6CC1967	C.CCC59)
(1553	SG 1	6CC1967	0.00734)	(1421	CH 2	23MY1967	0.01735)	(			

Species *incertae sedis*

Tropidoneis sp. #1.

715 IRSPECCA TCT AC CF STATICAS 2

(1240	D 6	1GJN1964	0.CC153)	(1268	E 2	15AU1964	C.CC274)	(

73.202 SEC. CPU TIME

CONCLUSIONS

It is apparent from the areal and temporal distribution of dominant plankton diatoms in Lake Michigan that certain entities are associated with certain broadly defined conditions of water quality. Certain taxa, notably *Cyclotella comta*, *C. operculata*, *C. ocellata* and *Melosira distans*, are apparently relatively important constituents of only extremely oligotrophic floras and are rapidly replaced in disturbed portions of the lake. These entities, with the exception of *M. distans*, are still found in the offshore flora of Lake Michigan although they appear to be relatively less abundant than they previously were, particularly in the southern basin of the lake. Reduction in the relative abundance of these entities is among the first indications of disturbance of the ecosystem that appears in phytoplankton assemblages.

Several entities which are relatively more abundant in the plankton flora appear to be somewhat more tolerant of changing conditions but are rapidly reduced in abundance with extensive chemically measurable change. Notable examples of this tendency are found among some of the modern offshore plankton dominants such as *Tabellaria fenestrata*, *Melosira islandica*, *Rhizosolenia eriensis*, *Stephanodiscus transilvanicus*, *Synedra ulna* var. *chaseana*, *C. michiganiana* and *C. kuetzingiana*. Decline in relative abundance of these taxa is the first indication of serious disturbance of areas within the Lake Michigan ecosystem.

Other entities which are relatively abundant in undisturbed portions of the lake appear to be favored by slight increases in trophic level and flourish in moderately disturbed portions of the lake. They initially show an increase in relative abundance only to decline if pollution increases. Some notable examples of this tendency are *Asterionella formosa*, *Fragilaria crotonensis*, *Stephanodiscus alpinus*, *S. minutus*, *S. niagarae*, *S. hantzschii*, *Synedra delicatissima*, *S. ulna* var. *danica*, *S. ostenfeldii* and *S. filiformis*. Decline in the relative abundance of these species in the plankton flora is usually accompanied by obvious decline in water quality and disturbance in higher trophic levels of the ecosystem such as the fish and benthic invertebrate faunas.

A number of species which were formerly apparently able to thrive only in naturally eutrophic estuaries and inshore areas of the lake are favored by increasing pollution and are able to flourish in highly disturbed portions of the open lake. Some of the more abundant entities showing this pattern of distribution are *Melosira granulata* and its varieties, *Fragilaria capucina* and its varieties, *F. construens*, *F. intermedia* and *Stephanodiscus tenuis*. Within this group *Melosira granulata* appears to be less successful in the offshore flora than might be expected from its usual dominance in smaller eutrophic lakes, probably due to its temperature tolerance. Its varieties appear to favor even higher trophic levels and become most abundant in extremely disturbed environments. On the other hand, the varieties of *Fragilaria capucina* appear to be better

adapted to existence in the offshore flora than the nominate variety. The species in this group presently are dominant in highly disturbed areas such as the nearshore waters of the southern basin of Lake Michigan and Green Bay. Most of them are best adapted to the ecosystem of smaller lakes, and with further disturbance of the system they will likely be replaced by entities in the following category. The single exception to this is *Stephanodiscus tenuis* which is well adapted to existence in the Great Lakes and which has become dominant in the plankton floras of Lake Ontario and Lake Erie.

The final general group of dominant plankton species includes those taxa which were apparently not able to live in Lake Michigan in its original condition and which have been introduced following pollution. Included in this group are such species as *Asterionella bleakleyi*, *Diatoma tenue* var. *elongatum*, *Stephanodiscus binderanus*, *S. subtilis*, *Nitzschia dissipata* and finally the species of *Thalassiosira* and *Coscinodiscus* now present. Within this group *Diatoma tenue* var. *elongatum*, *Nitzschia dissipata*, *Stephanodiscus binderanus* and *S. subtilis* first appear in our samples from the late 1930's. Ahlstrom (1936) reported *Diatoma tenue* var. *elongatum* from samples taken in the early 1930's and it is possible that some of the populations he reported as *Stephanodiscus hantzschii* may belong to either *S. binderanus* or *S. subtilis*. *Nitzschia dissipata* is a very widely distributed organism and seems to become moderately abundant in eutrophic lakes in many localities. Perhaps the most interesting taxon in this group from the standpoint of direct effects on water quality is *S. binderanus*. From the time of its introduction, probably sometime in the early 1930's, it increased in abundance to the point that it caused serious problems with short filter runs at the Chicago filtration plant in the mid and late 1950's (Vaughn 1961). At the present time it is dominant in the spring flora at some stations in the extreme southern basin and in Green Bay. It also seems to be increasing at the offshore stations as a considerable increase was noted between comparable stations in 1964 and 1967. It should be pointed out that estimates of the increase in abundance in this particular nuisance organism are probably highly conservative because its peak abundance is associated with the development of the thermal bar (Stoermer 1968). The final series of taxa, members of the genera *Thalassiosira* and *Coscinodiscus*, which appear to have been introduced into Lake Michigan sometime after 1945, apparently represent the end members of the pollution sequence in the Great Lakes, so far as the plankton diatom flora is concerned. At the present time the distribution of these entities in Lake Michigan is quite restricted. *Coscinodiscus subsalsus* has become one of the dominant species in Lake Erie and can be expected to increase dramatically as pollution of the lake continues.

Consideration of distribution and relative abundance of the major components of the plankton flora leads one to the conclusion that Lake Michigan is probably at the present time about at the "break point" between rather moderate and transient algal nuisances, largely confined to the inshore waters, and drastic and most likely irreversible changes in the entire ecosystem. As pointed out above, all of the plankton diatoms associated with extreme water quality degradation in the Great Lakes

system are now present in Lake Michigan. While the end members of the sequence are now present in only negligible numbers, the apparently accelerating increase in *S. binderanus* is disturbing both from the standpoint of its direct effect on water quality and because of the effects on the total system its presence indicates. Based on our qualitative evaluation of floristic changes in Lake Michigan it appears that reversal of the present trends will depend largely upon actions taken within the next, at most, ten years. It should be emphasized here that the samples available to us tend to introduce a conservative bias to these considerations. The early samples are all from the area which was earliest and most severely affected. Many of our recent samples come from the areas of the lake furthest removed from, and least affected by man's activities. This, unfortunately, shows only the worst conditions in Lake Michigan at the early dates and a spectrum including the best conditions in the recent samples. While local pollution problems affecting the qualitative aspects of the plankton diatom flora have been present for a long time, it should be pointed out that the floras of these inshore areas have now been very drastically altered and, more importantly, that the effects of pollution now are becoming increasingly evident throughout the system.

The areal distribution of the major plankton dominant taxa follows the trends one would expect from consideration of the location of major effluent sources with one striking exception. The plankton floras of southern Green Bay and local areas surrounding harbors and major stream mouths most strongly differ from the flora of the open lake. The extreme southern crescent of the lake, from Chicago to Benton Harbor, Michigan, is also obviously and strongly affected. Somewhat surprisingly, it also appears that the Ludington-Manistee-Frankfort area of the northern Michigan coast is apparently quite substantially disturbed. From the qualitative aspects of the flora it is suggested that this disturbance is largely the result of shifts in the conservative element balance rather than particularly high nutrient levels. From considerations of effluent sources and the morphometry of Lake Michigan, it is tempting to assume that the southern basin of the lake might be much more strongly affected by pollution than the northern basin. Our results tend to indicate that this is only partially true. It appears that the nearshore floras of the southern basin are more strongly affected than similar areas in the northern basin. On the other hand, more recent blooms of introduced organisms appear at stations in the northern basin also.

One of the striking observations from the present study is the large number of rare species that were recorded from our collections. We entered this study with the apparently rather naive assumption that the offshore plankton of Lake Michigan would not be available to other than euplanktonic forms and thus the plankton assemblages would resemble true oceanic plankton more than limnoplankton. This assumption proved to be, at best, only partially correct. On a quantitative basis it is true that ten or less entities usually comprise more than ninty percent of the total assemblage. It is also true, however, that these major dominants rarely exceed twenty percent of the species noted at a given station. In a given

assemblage a certain fraction of these minor species are euplanktonic forms present in low abundance. In almost all collections there are also sizable fractions of entities that are obviously derived from habitats other than the plankton. As would be expected, these entities are most abundant in collections taken from shallow water areas but they are also represented in the majority of collections taken even from midlake stations. The significance of this component of the flora is very difficult to determine. Included in it are a large number of apparent new records for the United States and a number of entities which are apparently undescribed. I have previously speculated (1967) that one of the effects of nutrient pollution in Lake Michigan is to render the plankton environment more accessible to entities which find their primary habitat in benthic assemblages. The results of this study would tend to support this contention. Any assessment of the impact this component of the flora has on practical problems in water quality control, or even of their value as indicators of environmental conditions, is extremely difficult at the present time. A good deal of further work will be necessary before this information can be reduced to a useful context. It is, however, obvious that any realistic attempt to treat the factors operational in the Great Lakes ecosystem must account for this component of the biota which has never, as yet, been investigated in a systematic manner.

Prior to 1966 slightly less than 350 taxa of diatoms had been reported from Lake Michigan. Removal of the obvious synonyms from this list reduces this number to something less than 300. In the present study more than 700 morphologically distinguishable entities were noted. Considering the fact that only plankton collections, which are depauperate in species compared to periphyton collections, were examined, it is obvious that our knowledge of the biological operators at this level of the Lake Michigan ecosystem is still quite primitive. There is still need for critical taxonomic revision of some of the genera present. This is particularly true of some of the highly variable planktonic genera such as *Synedra* and *Fragilaria*. Even for the entities well enough known so that it is possible to make firm statements about their taxonomic relationships, there is still a critical lack of knowledge regarding life cycles and quantitative environmental requirements. Of the entities treated here, the complete life cycles of less than twenty are fully known. For even fewer is there any trustworthy experimental information regarding nutrient and other environmental requirements. If we are ever to be able to gain the necessary insight to understand and manage large aquatic ecosystems, such as Lake Michigan, such information must be forthcoming. It is hoped that this study will furnish part of the necessary background to implement such studies.

When working with large, complex and variable assemblages as was necessary in this study, it is tempting to seek some measure of the distribution of populations within the various assemblages which will furnish insight into the factors affecting them. One of the obvious statistical devices to employ in this context is diversity analysis. One approach to this has been used by a group at the Academy of Natural Sciences of Philadelphia with apparent success in determining the effects of pollution on

stream diatom populations (Patrick, Hohn and Wallace 1954; Patrick 1963, 1964). In the present study, preliminary analysis of the method utilized by these workers indicated serious difficulty in applying it to plankton diatom populations in Lake Michigan. Their diversity calculations are based on the log normal population model advanced by Preston (1948). Hutchinson (1967) has pointed out that in plankton assemblages tolerable fit to a log normal curve may be achieved but that the mode remains at the origin even if very large assemblages are considered. In our analysis we adopted an information theory based diversity estimate which has been used, with apparent success, in determining shifts in subfossil diatom populations (Stockner and Benson 1967; Stoermer and Yang 1968). The results of this analysis are presented in appendix "A." Although this manipulation brought to light some points of interest, it is emphasized that diversity alone furnishes very little information regarding the trophic status of Lake Michigan plankton diatom populations. If all the assemblages are considered, the modal diversity values fall at 1.80 and the modal redundancy values fall at 0.60. If localities are considered it is apparent that the extremes, both high and low, of diversity and redundancy are found in harbor collections. If the offshore stations are considered it is apparent that the range of diversity values recorded at a given sampling station on successive sampling dates is, in most instances, fully as great as the difference between any two offshore sampling stations at a given date. On the basis of our observations there is a slight tendency for the average diversity, as measured by the index employed, to increase with eutrophication in Lake Michigan and for redundancy values to be reduced. This picture is complicated by the fact that most areas of the lake that are appreciably affected are also in nearshore localities which are more easily invaded by entities arising from benthic communities.

The following picture emerges from our consideration of diversity plankton diatom assemblages in Lake Michigan. Before the influence of man's activities, nutrients were at such low levels that many potential occupants of the habitat were effectively excluded. This is reflected in assemblages of rather low diversity. In addition plankton populations are strongly affected by seasonal succession. The dominant populations wax and wane during the seasonal cycle and these shifts are strongly reflected in diversity estimates derived from samples taken at successive points in time. It will be noted that the spring bloom tends to depress diversity and the progression of this bloom can be traced from south to north during 1964 and 1967 by reference to the diversity values given in appendix "A." During this stage in succession average diversity values will be low and extremes, both high and low, will be minimized. With addition of nutrients to such an environment it will be rendered available to more taxa, but the added nutrients will also allow increased population densities of the dominant taxa during blooms. This produces the effect that we presently see in Lake Michigan. There is a slight average increase in diversity but the extreme high and low values found in specific spot samples both exceed those found in the unaltered environment. As further nutrients are added, the favored species will occur in increasing densities but fewer taxa will be added to the total assemblage.

This would produce further spread in the possible values from spot samples, but average diversity values from many samples taken during a given season would closely approximate the values derived from samples from the unaltered environment. With gross pollution the plankton habitat would be denied to many species and those tolerant of such conditions would occur in very high density, hence diversity would be strongly depressed.

In previous studies related to water quality, diversity information has largely been used to detect exactly these conditions. This would certainly not be a viable context for the Great Lakes. Because of the extremely long residency time of water in the lakes and because their main utility lies in their aesthetic appeal and as a source for very high-quality potable water, adequate indicative criteria of water quality should be based on more subtle assessments. If the problem of time course considerations could be escaped, diversity measurements would be of much greater value in plankton studies. It should be pointed out that this is exactly the case in studies of fossil assemblages where an integration of the yearly floristic succession is obtained. It would appear that this is the reason why diversity measurements are a much more satisfactory tool in these studies.

SUMMARY

1. The present study shows a considerably more diverse diatom flora in Lake Michigan than had been reported previously. Contrary to expectations, a substantial number of the entities taken in plankton collections are obviously derived from benthic communities.

2. There has been an increase in the relative numbers of entities associated with degradation of water quality during the period of study. Certain entities associated with moderate to high levels of pollution which were not noted in earlier collections were apparently introduced prior to 1937 and now cause nuisances in certain inshore areas and are becoming increasingly abundant at offshore stations throughout the lake. Certain entities associated with extreme degradation of water quality in the Great Lakes system were introduced into Lake Michigan between 1947 and 1964. Although now present in only low numbers, they indicate the pollution of Lake Michigan is reaching critical levels.

3. Extreme differences exist, particularly at certain times of the year, between the coastal areas and open waters of the lake in terms of both abundance and species composition of the phytoplankton flora.

4. On the basis of the plankton diatom assemblages present, it appears that the most strongly affected areas of Lake Michigan are: the extreme southern crescent of the lake, from Chicago, Illinois, to Benton Harbor, Michigan; the southern portion of Green Bay; the northern Michigan coast in the Ludington-Manistee-Frankfort area. In addition, local problems exist around most of the major harbors.

5. Our study suggests that diversity estimates, based on single plankton collections, offer relatively little information regarding the condition of the waters sampled.

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Appendix A

List of Collections

Collections listed without alphabetical prefix are housed in the collection of the Great Lakes Research Division. Those with the prefix ANSP are the property of and are housed at the Academy of Natural Sciences, Philadelphia. In the case of collections in which the diatom assemblage has been analyzed in detail the following characteristics are listed: the total number of species present, the total number of specimens in the assemblage, an estimate of diversity computed as $H = -\sum_{i=1}^{S} pi \ln pi$ where pi represents an estimate of the proportion of the ith species, and an estimate of redundancy computed as $R = 1-H/\ln S$. Other collections have been examined in greater or lesser detail but have not been counted.

804 Shore plankton from beach near entrance to Wilderness St. Park, Michigan. Coll: E. F. Stoermer. 28 Sept. 1965.

810 Surface plankton from north side of Mackinaw City Public Dock, Mackinaw City, Michigan. Coll: E. F. Stoermer. 28 Sept. 1965.

826 Surface plankton from river side of breakwater, Elk River. Coll: E. F. Stoermer. 29 Sept. 1965.

827 Surface plankton from Lake Michigan side of breakwater, Elk River, Michigan. Coll: E. F. Stoermer. 29 Sept. 1965.

841 Surface plankton, Muskegon Lake, Michigan, near harbor entrance. Coll: E. F. Stoermer. 4 Oct. 1965.

842 Surface plankton, Lake Michigan, 7 mi at 210° from White Lake, Michigan, inlet, 9 mi 300° from Muskegon, Michigan, inlet. Coll: E. F. Stoermer. 5 Oct. 1965.

844 Plankton, surface, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

845 Plankton, 5 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

846 Plankton, 15 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

847 Plankton, surface, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

848 Plankton, 5 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

849 Plankton, 15 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

850 Plankton, surface, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

851 Plankton, 5 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

852 Plankton, 15 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

853 Plankton, surface, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

854 Plankton, 5 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

855 Plankton, 15 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

856 Plankton, surface, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

857 Plankton, 5 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

858 Plankton, 15 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

859 Plankton, surface, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

860 Plankton, 5 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

861 Plankton, 15 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

862 Plankton, surface, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

863 Plankton, 5 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

864 Plankton, 15 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

865 Plankton, surface, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

866 Plankton, 5 meters, Station D-4. 43°48'00"; 87°03'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

867 Plankton, 15 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

868 Plankton, surface, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

869 Plankton, 5 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

870 Plankton, 15 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

871 Plankton, surface, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

872 Plankton, 5 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

873 Plankton, 15 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

874 Plankton, surface, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

875 Plankton, 5 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

876 Plankton, 15 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

877 Plankton, surface, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

878 Plankton, 5 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

879 Plankton, 15 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

883 #25 net surface plankton, 8 mi. at 269° off Grand Haven, Michigan. Coll: E. F. Stoermer. 12 Jan. 1966.

896 Plankton from Grand River in town of Spring Lake, Ottawa County, Michigan. Coll: E. F. Stoermer. 13 April 1966.

898 Plankton, surface, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).

899 Plankton, 5 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).

900 Plankton, 15 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).

901 Plankton, surface, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).

902 Plankton, 5 meters, Station A-4. 42°03'30"N: 87°06'30"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).

903 Plankton, 15 meters, Station A-4. 42°03'30"N: 87°06'30"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).

904 Plankton, surface, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).

905 Plankton, 5 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).

906 Plankton, 15 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).

907 Plankton, surface, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

908 Plankton, 5 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

909 Plankton, 15 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

910 Plankton, surface, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

911 Plankton, 5 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

912 Plankton, 15 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

913 Plankton, surface, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

914 Plankton, 5 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

915 Plankton, 15 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

916 Plankton, surface, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 3 April 1966 (500 ml).

917 Plankton, 5 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 3 April 1966 (500 ml).

918 Plankton, 15 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 3 April 1966 (500 ml).

919 Plankton, surface, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 3 April 1966 (500 ml).

920 Plankton, 5 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 3 April 1966 (500 ml).

921 Plankton, 15 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 3 April 1966 (500 ml).

922 Plankton, surface, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 3 April 1966 (500 ml).

923 Plankton, 5 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 3 April 1966 (500 ml).

924 Plankton, 15 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 3 April 1966 (500 ml).

925 Plankton, surface, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).

926 Plankton, 5 meters. Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).

927 Plankton, 15 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).

928 Plankton, surface, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).

929 Plankton, 5 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).

930 Plankton, 15 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).

931 Plankton, surface, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).

932 Plankton, 5 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).

933 Plankton, 15 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).

938 Plankton, surface, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

939 Plankton, 5 meters, Station A-3. 43°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

940 Plankton, 15 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

941 Plankton, surface, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

942 Plankton, 5 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

943 Plankton, 15 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

944 Plankton, surface, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

945 Plankton, 5 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

946 Plankton, 15 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

947 Plankton, surface, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

948 Plankton, 5 meters, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

949 Plankton, 15 meters, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

950 Plankton, surface, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

951 Plankton, 5 meters, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

952 Plankton, 15 meters, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

953 Plankton, surface, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

954 Plankton, 5 meters, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

955 Plankton, 15 meters, Station B-6. 42°22'30"N; 87"30'00"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

956 Plankton, surface, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

957 Plankton, 5 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

958 Plankton, 15 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

959 Plankton, surface, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

960 Plankton, 5 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

961 Plankton, 15 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

962 Plankton, surface, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

963 Plankton, 5 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

964 Plankton, 15 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

965 Plankton, surface, Station D-2. 43°56'00"N; 86°39'30"W. Coll. E. F. Stoermer. 28 April 1966 (500 ml).

966 Plankton, 5 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

967 Plankton, 15 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

968 Plankton, surface, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

969 Plankton, 5 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

970 Plankton, 15 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

971 Plankton, surface, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

972 Plankton, 5 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

973 Plankton, 15 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

974 Plankton, surface, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

975 Plankton, 5 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

976 Plankton, 15 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

977 Plankton, surface, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

978 Plankton, 5 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

979 Plankton, 15 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

980 Plankton, surface, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

981 Plankton, 5 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

982 Plankton, 15 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).

983 Plankton, surface, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).

984 Plankton, 5 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).

985 Plankton, 15 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).

986 Plankton, surface, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).

987 Plankton, 5 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).

988 Plankton, 15 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).

989 Plankton, surface, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).

990 Plankton, 5 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).

991 Plankton, 15 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).

992 Plankton, surface, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 16 May 1966 (500 ml).

993 Plankton, 5 meters, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 16 May 1966 (500 ml).

994 Plankton, 15 meters, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 16 May 1966 (500 ml).

995 Plankton, surface, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 16 May 1966 (500 ml).

996 Plankton, 5 meters, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 16 May 1966 (500 ml).

997 Plankton, 15 meters, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 16 May 1966 (500 ml).

998 Plankton, surface, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 16 May 1966 (500 ml).

999 Plankton, 5 meters, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 16 May 1966 (500 ml).

1000 Plankton, 15 meters, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 16 May 1966 (500 ml).

1001 Plankton, surface, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

1002 Plankton, 5 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

1003 Plankton, 15 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

1004 Plankton, surface, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

1005 Plankton, 5 meter, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

1006 Plankton, 15 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

1007 Plankton, surface, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

1008 Plankton, 5 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

1009 Plankton, 15 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

1010 Plankton, surface, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 17 May 1966 (500 ml).

1011 Plankton, 5 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 17 May 1966 (500 ml).

1012 Plankton, 15 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 17 May 1966 (500 ml).

1013 Plankton, surface, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 17 May 1966 (500 ml).

1014 Plankton, 5 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 17 May 1966 (500 ml).

1015 Plankton, 15 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 17 May 1966 (500 ml).

1016 Plankton, surface, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 17 May 1966 (500 ml).

1017 Plankton, 5 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 17 May 1966 (500 ml).

1018 Plankton, 15 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll: E. F. Stoermer. 17 May 1966 (500 ml).

1019 Plankton, surface, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 20 May 1966 (500 ml).

1020 Plankton, 5 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 20 May 1966 (500 ml).

1021 Plankton, 15 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll: E. F. Stoermer. 20 May 1966 (500 ml).

1022 Plankton, surface, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 20 May 1966 (500 ml).

1023 Plankton, 5 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 20 May 1966 (500 ml).

1024 Plankton, 15 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 20 May 1966 (500 ml).

1025 Plankton, surface, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 20 May 1966 (500 ml).

1026 Plankton, 5 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 20 May 1966 (500 ml).

1027 Plankton, 15 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 20 May 1966 (500 ml).

1033 Plankton (#25 net), Garden Creek, near outlet in town of Garden, Delta County, Michigan. Sec. 17, R18W, Twp 39N. Coll: E. F. Stoermer. 20 June 1966.

1035 Plankton near shore (#25 net), fishing access site near town of Garden, Delta County, Michigan. Sec. 18, R18W, T39N. Coll: E. F. Stoermer. 20 June 1966.

1042 Shore plankton (#25 net), Sack Bay, Delta County, Michigan. Sec. 30, R19W, T38N. Coll: E. F. Stoermer. 20 June 1966.

1044 Shore plankton (#25 net), Sand Bay, near Fayette State Park, Delta County, Michigan. Sec. 9, R19W, T38N. Coll: E. F. Stoermer. 20 June 1966.

1046 Shore plankton (#25 net), Fayette Harbor, Fayette State Park, Delta County, Michigan. Sec. 4, R19W, T38N. Coll: E. F. Stoermer. 20 June 1966.

1056 Plankton, Harbor of Manistique, Schoolcraft County, Michigan. Sec. 12, R16W, T41. Considerable wood detritus, depauperate algal flora. Coll: E. F. Stoermer. 21 June 1966.

1060 Plankton - from ferry dock, St. Ignace, Mackinac County, Michigan. Sec. 18, R3W, T40N. Coll: E. F. Stoermer. 21 June 1966.

1092 Shore plankton from harbor, Cross Village. Sec. 33, R6W, T38N. Emmet County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1094 Shore plankton, City Park, Harbor Springs. Sec. 13, R6W, T35N. Emmet County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1095 Shore plankton, tile outlet just east of "Irish Marina." Sec. 18, R5W, T35N. Harbor Springs, Emmet County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1096 Plankton, Petoskey Harbor. Sec. 31, R5W, T35N. Emmet County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1100 Plankton ship channel, Charlevoix. Sec. 27, R8W, T34N. Charlevoix County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1102 Plankton, Lake Charlevoix, Charlevoix City Dock. Sec. 26, R8W, T34S. Charlevoix County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1105 Plankton, river side of breakwater, Elk Rapids. Sec. 20, R9W, T29N. Antrim County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1108 Shore plankton, harbor of Traverse City. Sec. 6, R10W, T27N. Grand Traverse County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1114 Plankton, Lake Michigan, 100 yds from confluence of Platte River. Sec. 20, R15W, T27N. Benzie State Park, Benzie County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1116 Plankton, Platte River, at confluence with Lake Michigan. Sec. 20, R15W, T27N. Benzie State Park, Benzie County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

1121 Plankton, Lake Michigan just outside Frankfort breakwater. Sec. 28, R16W, T26N. Benzie County, Michigan. Coll: E. F. Stoermer. 24 June 1966.

1122 Plankton, Frankfort Harbor, just inside breakwater. Sec. 28, R16W, T26N. Benzie County, Michigan. Coll: E. F. Stoermer. 24 June 1966.

1125 Plankton just outside breakwater, Manistee. Sec. 3, R17W, T21N. Manistee County, Michigan. Coll: E. F. Stoermer. 24 June 1966.

1126 Plankton just inside breakwater, Manistee. Sec. 3, R17W, T21N. Manistee County, Michigan. *Melosira* dominant. Coll: E. F. Stoermer. 24 June 1966.

1128 Plankton inside harbor, Ludington. Sec. 16, R18W, T18N. Mason County, Michigan. Coll: E. F. Stoermer. 24 June 1966.

1130 Plankton just outside harbor, Ludington. Sec. 16, R18W, T18N. Mason County, Michigan. Coll: E. F. Stoermer. 24 June 1966.

1132 Shore plankton shallow water in Muskegon Lake, pier across from State Park office. Sec. 22, R17W, T10N. Muskegon State Park, Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.

1135 Plankton, Muskegon Lake, just inside ship channel, Sec. 28, R17W, T10N. Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.

1139 Plankton, inside Muskegon north piers. Sec. 29, R17W, T10N, Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.

1141 Plankton, outside Muskegon north pier. Sec. 29, R17W, T10N. Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.

1142 Plankton, 10 yds off campground beach, Muskegon State Park. Sec. 17, R17W, T10N. Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.

1143 Plankton 100 yds off campground beach, Muskegon State Park. Sec. 17, R17W, T10N. Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.

1144 Surface #20 net tow, Lake Michigan. Station GA-1a. 41°38.4'N; 87°19.0'W. Coll: A. Strong. 19 May 1966.

1145 Surface #20 net tow, Lake Michigan. Station GA-1b. 41°38.4'N; 87°19.0'W. Coll: A. Strong. 19 May 1966.

1164 Vertical #20 net tow, 55ft depth. Sleeping Bear Bay, Lake Michigan. Coll: Robert Anderson. 21 June 1966.

1192 Surface #20 net tow. Station PM-1. 45°46'30"N; 85°08'45"W. Lake Michigan. Coll: E. F. Stoermer. 21 Sept. 1966.

1193 Surface #20 net tow. Station PM-2. 45°24.0'N; 85°15.0'W. Lake Michigan. Mostly zooplankton. Coll: E. F. Stoermer. 21 August 1966.

1194 Surface #20 net tow. Station PM-3. 45°17.2'N; 85°55.0'W. Lake Michigan. Coll: E. F. Stoermer. 21 August 1966.

1195 Surface #20 net tow. Station PM-4. 45°01'18"N; 85°55'00"W. Lake Michigan. Coll: E. F. Stoermer. 22 August 1966.

1196 Vertical #20 net tow. Station MP-2. 44°57'48"N; 86°03'06"W. Lake Michigan. Coll: E. F. Stoermer. 22 August 1966.

1197 Vertical #20 net tow. Station AEC-1. 42°36.0'N; 86°59.0'W. Lake Michigan. Coll: E. F. Stoermer. 19 Sept. 1966.

1198 Vertical #20 net tow. Station AEC-2. 42°46.5'N; 87°02.5'W. Lake Michigan. Coll: E. F. Stoermer. 19 Sept. 1966.

1199 Vertical #20 net tow. Station AEC-3. 43°18.5'N; 86°42.5'W. Lake Michigan. Coll: E. F. Stoermer. 20 Sept. 1966.

1200 Vertical #20 net tow. Station AEC-4. 43°54.4'N; 86°49.0'W. Lake Michigan. Coll: E. F. Stoermer. 20 Sept. 1966.

1201 Vertical #20 net tow. Station AEC-5. 44°08.7'N; 86°42.6'W. Lake Michigan. Coll: E. F. Stoermer. 21 Sept. 1966.

1202 Vertical #20 net tow. Station AEC-6. 44°20.0'N; 86°43.1'W. Lake Michigan. Coll: E. F. Stoermer. 21 Sept. 1966.

1203 Vertical #20 net tow. Station AEC-7. 44°28.7'N; 86°43.1'W. Lake Michigan. Coll: E. F. Stoermer. 21 Sept. 1966.

1204 Vertical #20 net haul. Station A-1. 42°06'30"N; 86°32'00"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966.

1205 Vertical #20 net haul. Station A-2. 42°06'00"N; 86°37'00"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966.

1206 Vertical #20 net haul. Station A-3. 42°05'30"N; 86°43'00"W. Lake Michigan. Coll: J. Ayers. 27 Sept. 1966.

1207 Vertical #20 net haul. Station A-4. 42°03'30"N; 87°06'30"W. Lake Michigan. Coll: J. Ayers. 27 Sept. 1966.

1208 Vertical #20 net haul. Station A-5. 41°57'00"N; 87°18'30"W. Lake Michigan. Coll: J. Ayers. 27 Sept. 1966.

1209 Vertical #20 net haul. Station A-6. 41°52'00"N; 87°27'00"W. Lake Michigan. Coll: J. Ayers. 27 Sept. 1966.

1210 Vertical #20 net haul. Station C-1. 42°49'40"N; 86°14'50"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966.

1211 Vertical #20 net haul. Station C-2. 42°49'40"N; 86°18'25"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966.

1212 Vertical #20 net haul. Station C-3. 42°49'10"N; 86°28'25"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966 (Extremely sparse phytoplankton).

1213 Vertical #20 net haul. Station C-4. 42°48'50"N; 86°41'30"W. Lake Michigan. Coll: J. Ayers. 28 Sept. 1966.

1214 Vertical #20 net haul. Station C-5. 42°49'00"N; 86°50'00"W. Lake Michigan. Coll: J. Ayers. 28 Sept. 1966.

1215 Vertical #20 net haul. Station C-6. 42°47'40"N; 87°26'50"W. Lake Michigan. Coll: J. Ayers. 28 Sept. 1966.

1216 Vertical #20 net haul. Station C-7. 42°47'30"N; 87°34'30"W. Lake Michigan. Coll: J. Ayers. 28 Sept. 1966.

1217 Vertical #20 net haul. Station E-1. 44°37'30"N; 86°18'12"W. Lake Michigan. Coll: J. Ayers. 2 Oct. 1966.

1218 Vertical #20 net haul. Station E-2. 44°37'00"N; 86°21'42"W. Lake Michigan. Coll: J. Ayers. 2 Oct. 1966.

1219 Vertical #20 net haul. Station E-3. 44°34'00"N; 86°40'00"W. Lake Michigan. Coll: J. Ayers. 2 Oct. 1966.

1220 Vertical #20 net haul. Station E-4. 44°30'18"N; 86°55'18"W. Lake Michigan. Coll: J. Ayers. 2 Oct. 1966.

1221 Vertical #20 net haul. Station #-5. 44°25'30"N; 87°10'18"W. Lake Michigan. Coll: J. Ayers. 1 Oct. 1966.

1222 Vertical #20 net haul. Station E-6. 44°27'48"N; 87°26'25"W. Lake Michigan. Coll: J. Ayers. 1 Oct. 1966.

1223 #20 net sample, vertical haul, 83 m., Station B-3. 42°24'00"N; 86°35'30"W. Coll: C. F. Powers. 18 May 1964.
26 spp. 63995 spec. H=0.848 R=0.740

1224 #20 net sample, vertical haul, 141 m., Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 18 May 1964.
33 spp. 51005 spec. H=0.721 R=0.794

1225 #20 net sample, vertical haul, Station C-6. 42°47'40"N; 87°26'50"W. Coll: C. F. Powers. 15 May 1964.
40 spp. 25510 spec. H=1.368 R=0.629

1226 #20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W. Coll: C. F. Powers. 16 May 1964.
42 spp. 26280 spec. H=1.520 R=0.593

1227 #20 net sample, vertical haul, Station C-2. 43°12'00"N; 86°31'00"W. Coll: C. F. Powers. 13 May 1964.
40 spp. 91190 spec. H=1.264 R=0.657

1228 #20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W.
Coll: C. F. Powers. 14 May 1964.
46 spp. 51379 spec. H=1.243 R=0.675

1229 #20 net sample, vertical haul, Station D-5. 43°38'40"N; 87°31'00"W.
Coll: C. F. Powers. 14 May 1964.
52 spp. 47291 spec. H=1.638 R=0.585

1230a #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 16 May 1964.
50 spp. 33745 spec. H=1.416 R=0.638

1231 #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 16 May 1964.
51 spp. 40884 spec. H=1.225 R=0.688

1232 #20 net sample, vertical haul, Station E-5. 44°25'30"N; 87°10'18"W.
Coll: C. F. Powers. 16 May 1964.
59 spp. 57498 spec. H=1.659 R=0.593

1233 #20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W.
Coll: C. F. Powers. 5 June 1964.
37 spp. 41991 spec. H=1.673 R=0.537

1234a #20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W.
Coll: C. F. Powers. 18 June 1964.
38 spp. 35568 spec. H=1.574 R=0.567

1235a #20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W.
Coll: C. F. Powers. 16 June 1964.
35 spp. 35407 spec. H=1.446 R=0.593

1236 #20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W.
Coll: C. F. Powers. 8 June 1964.
64 spp. 57132 spec. H=1.668 R=0.599

1237a #20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W.
Coll: C. F. Powers. 8 June 1964.
49 spp. 38790 spec. H=1.674 R=0.570

1238 #20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W.
Coll: C. F. Powers. 11 June 1964.
44 spp. 50000 spec. H=0.972 R=0.743

1239 #20 net sample, vertical haul, Station D-4. 43°48'00"N; 87°03'00"W.
Coll: C. F. Powers. 11 June 1964.
39 spp. 86175 spec. H=1.240 R=0.661

1240 #20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W.
Coll: C. F. Powers. 10 June 1964.
83 spp. 65191 spec. H=1.398 R=0.684

1241 #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 13 June 1964.
56 spp. 67634 spec. H=1.418 R=0.648

1242 #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 13 June 1964.
44 spp. 66726 spec. H=0.629 R=0.834

1243 #20 net sample, vertical haul, Station E-6. 44°27'48"N; 87°26'25"W.
Coll: C. F. Powers. 13 June 1964.
78 spp. 47892 spec. H=1.655 R=0.620

1244 #20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W.
Coll: C. F. Powers. 11 June 1964.
89 spp. 91203 spec. H=1.500 R=0.666

1245a #20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W.
Coll: C. F. Powers. 11 June 1964
68 spp. 28922 spec. H=1.490 R=0.647

1246a #20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W.
Coll: C. F. Powers. 11 June 1964.
54 spp. 16733 spec. H=1.554 R=0.610

1247a #20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W.
Coll: C. F. Powers. 14 July 1964.
28 spp. 23427 spec. H=1.572 R=0.528

1248 #20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W.
Coll: C. F. Powers. 24 July 1964.
34 spp. 50748 spec. H=1.626 R=0.539

1249 #20 net sample, vertical haul, Station C-3. 42°49'10"N; 86°28'25"W.
Coll: C. F. Powers. 8 July 1964.
27 spp. 36820 spec. H=1.520 R=0.539

1250a #20 net sample, vertical haul, Station C-6. 42°47'40"N; 87°26'50"W.
Coll: C. F. Powers. 10 July 1964.
42 spp. 24325 spec. H=1.838 R=0.508

1251 #20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W.
Coll: C. F. Powers. 16 July 1964.
37 spp. 34518 spec. H=1.422 R=0.606

1252 #20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W.
Coll: C. F. Powers. 16 July 1964.
55 spp. 35850 spec. H=1.682 R=0.580

1253 #20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W.
Coll: C. F. Powers. 16 July 1964.
43 spp. 43816 spec. H=1.647 R=0.562

1254 #20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W.
Coll: C. F. Powers. 15 July 1964.
56 spp. 52210 spec. H=1.722 R=0.572

1255 #20 net sample, vertical haul, Station D-5. 43°38'40"N; 87°31'00"W.
Coll: C. F. Powers. 15 July 1964.
55 spp. 38962 spec. H=2.048 R=0.489

1256 #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 14 July 1964.
73 spp. 54588 spec. H=1.533 R=0.638

1257 #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 14 July 1964.
63 spp. 41795 spec. H=1.464 R=0.647

1258 #20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W.
Coll: C. F. Powers. 6 July 1964.
117 spp. 42377 spec. H=1.984 R=0.583

1259 #20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W.
Coll: C. F. Powers. 6 July 1964.
78 spp. 32272 spec. H=1.988 R=0.544

1260 #20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W.
Coll: C. F. Powers. 6 July 1964.
89 spp. 52357 spec. H=2.012 R=0.552

1261 #20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W.
Coll: C. F. Powers. 2 August 1964.
31 spp. 50956 spec. H=1.278 R=0.628

1262 #20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W.
Coll: C. F. Powers. 17 August 1964.
31 spp. 47620 spec. H=1.254 R=0.635

1263 #20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W.
Coll: C. F. Powers. 15 August 1964.
20 spp. 24980 spec. H=1.214 R=0.595

1264 #20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W.
Coll: C. F. Powers. 10 August 1964.
74 spp. 51792 spec. H=1.705 R=0.604

1265 #20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W.
Coll: C. F. Powers. 10 August 1964.
52 spp. 44733 spec. H=1.571 R=0.602

1266 #20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W.
Coll: C. F. Powers. 18 August 1964.
44 spp. 28508 spec. H=2.259 R=0.403

1267 #20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W.
Coll: C. F. Powers. 18 August 1964.
38 spp. 46260 spec. H=1.289 R=0.646

1268 #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 15 August 1964.
82 spp. 36556 spec. H=2.081 R=0.528

1269 #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 15 August 1964.
50 spp. 36486 spec. H=2.007 R=0.487

1270 #20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W.
Coll: C. F. Powers. 10 August 1964.
84 spp. 36725 spec. H=1.817 R=0.590

1271a #20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W.
Coll: C. F. Powers. 22 Sept. 1964.
39 spp. 15317 spec. H=0.984 R=0.731

1272 #20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W.
Coll: C. F. Powers. 10 Sept. 1964.
57 spp. 24363 spec. H=1.732 R=0.572

1273a #20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W.
Coll: C. F. Powers. 10 Sept. 1964.
39 spp. 18599 spec. H=1.703 R=0.535

1274a #20 net sample, vertical haul, Station D-1. 43°57'00"N; 86°33'00"W.
Coll: C. F. Powers. 17 Sept. 1964.
49 spp. 21313 spec. H=1.700 R=0.563

1275 #20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W.
Coll: C. F. Powers. 17 Sept. 1964.
52 spp. 15501 spec. H=1.770 R=0.552

1276a #20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W.
Coll: C. F. Powers. 18 Sept. 1964.
28 spp. 8948 spec. H=1.860 R=0.442

1277 #20 net sample, vertical haul, Station D-4. 43°48'00"N; 87°03'00"W.
Coll: C. F. Powers. 18 Sept. 1964.
29 spp. 16138 spec. H=1.446 R=0.571

1278a #20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W.
Coll: C. F. Powers. 18 Sept. 1964.
44 spp. 26019 spec. H=1.388 R=0.633

1279a #20 net sample, vertical haul, Station E-1. 44°37'30"N; 86°18'12"W.
Coll: C. F. Powers. 16 Sept. 1964.
109 spp. 25467 spec. H=1.832 R=0.610

1280a #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 16 Sept. 1964.
42 spp. 14689 spec. H=1.558 R=0.583

1281a #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 16 Sept. 1964.
40 spp. 25483 spec. H=1.951 R=0.471

1282 #20 net sample, vertical haul, Station E-4. 44°30'18"N; 86°55'18"W.
Coll: C. F. Powers. 16 Sept. 1964.
34 spp. 9025 spec. H=1.772 R=0.497

1283a #20 net sample, vertical haul, Station E-5. 44°25'30"N; 87°10'18"W.
Coll: C. F. Powers. 16 Sept. 1964.
38 spp. 16314 spec. H=2.064 R=0.432

1284a #20 net sample, vertical haul, Station E-6. 44°27'48"N; 87°26'25"W.
Coll: C. F. Powers. 17 Sept. 1964.
77 spp. 31473 spec. H=1.900 R=0.563

1285a #20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W.
Coll: C. F. Powers. 15 Sept. 1964.
151 spp. 17171 spec. H=2.374 R=0.527

1286a #20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W.
Coll: C. F. Powers. 15 Sept. 1964.
44 spp. 9136 spec. H=1.864 R=0.507

1287a #20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W.
Coll: C. F. Powers. 15 Sept. 1964.
48 spp. 19984 spec. H=1.821 R=0.530

1288a #20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W.
Coll: C. F. Powers. 15 Oct. 1964.
35 spp. 45938 spec. H=1.406 R=0.605

1289 #20 net sample, vertical haul. Station C-7. 42°47'30"N; 87°34'30"W.
Coll: C. F. Powers. 14 Oct. 1964.
40 spp. 22741 spec. H=1,343 R=0.636

1290a #20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W.
Coll: C. F. Powers. 16 Oct. 1964.
32 spp. 26385 spec. H=1.331 R=0.616

1291a #20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W.
Coll: C. F. Powers. 16 Oct. 1964.
29 spp. 40878 spec. H=1.340 R=0.602

1292a #20 net sample, vertical haul, Station D-1. 43°57'00"N; 86°33'00"W.
Coll: C. F. Powers. 15 Oct. 1964.
30 spp. 26832 spec. H=1.381 R=0.594

1293a #20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W.
Coll: C. F. Powers. 15 Oct. 1964.
34 spp. 21202 spec. H=1.408 R=0.601

1294a #20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W.
Coll: C. F. Powers. 15 Oct. 1964.
37 spp. 30337 spec. H=1.564 R=0.567

1295 #20 net sample, vertical haul, Station D-4. 43°48'00"N; 87°03'00"W.
Coll: C. F. Powers. 15 Oct. 1964.
33 spp. 16818 spec. H=1.605 R=0.541

1296 #20 net sample, vertical haul, Station D-5. 43°38'40"N; 87°31'00"W.
Coll: C. F. Powers. 14 Oct. 1964.
31 spp. 25417 spec. H=1.306 R=0.620

1297a #20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W.
Coll: C. F. Powers. 14 Oct. 1964.
60 spp. 52522 spec. H=1.512 R=0.631

1298 #20 net sample, vertical haul, Station E-1. 44°37'30"N; 86°18'12"W.
Coll: C. F. Powers. 12 Oct. 1964.
48 spp. 37136 spec. H=1.461 R=0.622

1299a #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 12 Oct. 1964.
50 spp. 31830 spec. H=1.677 R=0.571

1300 #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 13 Oct. 1964.
61 spp. 27935 spec. H=2.000 R=0.513

1301a #20 net sample, vertical haul, Station E-4. 44°30'18"N; 86°55'18"W.
Coll: C. F. Powers. 13 Oct. 1964.
46 spp. 22646 spec. H=1.953 R=0.490

1302a #20 net sample, vertical haul, Station E-5. 44°25'30"N; 87°10'18"W.
Coll: C. F. Powers. 13 Oct. 1964.
61 spp. 24698 spec. H=2.049 R=0.502

1303 #20 net sample, vertical haul, Station E-6. 44°27'48"N; 87°26'25"W.
Coll: C. F. Powers. 13 Oct. 1964.
54 spp. 17866 spec. H=2.097 R=0.474

1304a #20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W.
Coll: C. F. Powers. 11 Oct. 1964.
83 spp. 40492 spec. H=1.038 R=0.765

1305a #20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W.
Coll: C. F. Powers. 11 Oct. 1964.
74 spp. 57966 spec. H=0.870 R=0.798

1306a #20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W.
Coll: C. F. Powers. 11 Oct. 1964.
56 spp. 36078 spec. H=0.998 R=0.752

1307 #20 net sample, vertical haul, Station B-6. 42°22'30"N; 87°30'00"W.
Coll: C. F. Powers. Probably Nov. 1964.
39 spp. 27716 spec. H=1.493 R=0.593

1308a #20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W.
Coll: C. F. Powers. 6 Nov. 1964.
42 spp. 32879 spec. H=1.366 R=0.635

1309a #20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W.
Coll: C. F. Powers. 10 Nov. 1964.
35 spp. 62192 spec. H=1.202 R=0.662

1310 #20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W.
Coll: C. F. Powers. 10 Nov. 1964.
32 spp. 44100 spec. H=1.371 R=0.604

1311 #20 net sample, vertical haul, Station D-1. 43°57'00"N; 86°33'00"W.
Coll: C. F. Powers. 8 Nov. 1964.
41 spp. 38762 spec. H=1.362 R=0.633

1312 #20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W.
Coll: C. F. Powers. 8 Nov. 1964.
33 spp. 32215 spec. H=1.410 R=0.597

1313 #20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W.
Coll: C. F. Powers. 9 Nov. 1964.
38 spp. 51800 spec. H=1.493 R=0.590

1314a #20 net sample, vertical haul, Station D-4. 43°48'00"N; 87°03'00"W.
Coll: C. F. Powers. 9 Nov. 1964.
31 spp. 34833 spec. H=1.482 R=0.568

1315 #20 net sample, vertical haul, Station D-5. 43°38'40"N; 87°31'00"W.
Coll: C. F. Powers. 9 Nov. 1964.
33 spp. 21980 spec. H=1.404 R=0.598

1316 #20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W.
Coll: C. F. Powers. 9 Nov. 1964.
48 spp. 26472 spec. H=1.608 R=0.585

1317 #20 net sample, vertical haul, Station E-1. 44°37'30"N; 86°18'12"W.
Coll: C. F. Powers. 6 Nov. 1964.
48 spp. 52228 spec. H=1.394 R=0.640

1318a #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 7 Nov. 1964.
51 spp. 52563 spec. H=1.544 R=0.607

1319 #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 7 Nov. 1964.
43 spp. 38193 spec. H=1.620 R=0.569

1320a #20 net sample, vertical haul, Station E-4. 44°30'18"N; 86°55'18"W.
Coll: C. F. Powers. 7 Nov. 1964.
63 spp. 48350 spec. H=1.646 R=0.603

1321 #20 net sample, vertical haul, Station E-5. 44°25'30"N; 87°10'18"W.
Coll: C. F. Powers. 7 Nov. 1964.
50 spp. 31326 spec. H=1.616 R=0.587

1322a #20 net sample, vertical haul, Station E-6. 44°27'48"N; 87°26'25"W.
Coll: C. F. Powers. 7 Nov. 1964.
57 spp. 30007 spec. H=1.674 R=0.586

1323a #20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W.
Coll: C. F. Powers. 6 Nov. 1964.
56 spp. 71750 spec. H=1.152 R=0.714

1324 #20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W.
Coll: C. F. Powers. 6 Nov. 1964.
49 spp. 42933 spec. H=1.192 R=0.694

1325a #20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W.
Coll: C. F. Powers. 6 Nov. 1964.
33 spp. 39699 spec. H=1.346 R=0.615

1331 Plankton, #20 net vertical haul. Sta. MIL-1D. Milwaukee, Wisconsin.
Coll: J. Ayers. 21 July 1965.

1332 Vertical #20 net haul. Sta. MHKE-16. Milwaukee, Wisconsin. Lk. Mich.
Coll: J. Ayers. 23 July 1965.

1333 Oblique #20 net haul. Sta. MIL-KE. Milwaukee, Wisconsin. Lk. Mich.
Coll: J. Ayers. 24 July 1965.

1334 Oblique #20 net haul. Sta. MIL-35. Milwaukee, Wisconsin. Lk. Mich.
Coll: J. Ayers. 27 July 1965.

1335 #20 net oblique haul. Sta. MH-29. Milwaukee, Wisconsin. Lk. Mich.
Coll: J. Ayers. 28 July 1965.

1336 Vertical #20 net haul. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: C. F. Powers. 27 Jan. 1967.
41 spp. 51933 spec. H=0.893 R=0.759

1337 Vertical #20 net haul. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: C. F. Powers. 2 March 1967.
60 spp. 68039 spec. H=1.884 R=0.540

1338a Vertical #20 net haul. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: C. F. Powers. 28 March 1967.
58 spp. 75628 spec. H=2.002 R=0.507

1339 Vertical #20 net haul. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: C. F. Powers. 28 March 1967.
52 spp. 32074 spec. H=1.747 R=0.558

1340a Vertical #20 net haul. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: C. F. Powers. 28 March 1967.
67 spp. 137519 spec. H=1.793 R=0.574

1341a Vertical #20 net haul. Sta. A-3-A. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 19 April 1967.
102 spp. 92183 spec. H=1.700 R=0.632

1342 Vertical #20 net haul. Sta. A-4-A. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 19 April 1967.
72 spp. 55413 spec. H=1.930 R=0.549

1343 Vertical #20 net haul. Sta. A-6-A. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 19 April 1967.
77 spp. 143939 spec. H=1.409 R=0.676

1344a Vertical #20 net haul. Sta. C-3-E. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 25 April 1967.
48 spp. 60445 spec. H=1.324 R=0.658

1345a Vertical #20 net haul. Sta. C-5-E. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 25 April 1967.
60 spp. 51303 spec. H=2.073 R=0.494

1346a Vertical #20 net haul. Sta. C-7-E. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 21 April 1967.
76 spp. 74893 spec. H=1.471 R=0.660

1347a Vertical #20 net haul. Sta. E-2-E. 44°37'00"N; 86°21'40"W. Lake Mich. Coll: E. Dunster. 23 April 1967.
53 spp. 61505 spec. H=1.760 R=0.557

1348a Vertical #20 net haul. Sta. E-5-E. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: E. Dunster. 23 April 1967.
72 spp. 72950 spec. H=1.758 R=0.589

1349 Vertical #20 net haul. Off Chicago--Pierhead, Illinois. CI: 41°53.3'N; 87°35.4'W. Lake Mich. Coll: E. Dunster. 19 April 1967.
70 spp. 27838 spec. H=1.752 R=0.588

1350a Surface #20 net tow. Benton Harobr, Michigan. BH: 42°06.9'N; 86°29.7'W. Lake Mich. Coll: E. Dunster. 19 April 1967.
237 spp. 45401 spec. H=2.572 R=0.530

1351 Surface #20 net tow. Milwaukee entrance, Wisconsin. MI: 43°01,6'N; 87°52.9'W. Lake Mich. Coll: E. Dunster. 21 April 1967.
72 spp. 32225 spec. H=2.123 R=0.504

1352 Surface #20 net tow. Kewaunee Harbor entrance, Wisconsin KW: 44°27.5'N; 87°29.6'W. Lake Mich. Coll: E. Dunster. 21 April 1967.
80 spp. 11642 spec. H=2.635 R=0.399

1353 Surface #20 net tow. Frankfort---off piers, Michigan. FR: 44°37.8'N; 86°15.0'W. Lake Mich. Coll: E. Dunster. 23 April 1967.
49 spp. 9480 spec. H=1.876 R=0.518

1354 Surface #20 net tow. Outside, Grand Haven pierheads, Michigan. GH: 43°03.5'N; 86°15.4'W. Lake Mich. Coll: E. Dunster. 25 April 1967.
133 spp. 57942 spec. H=1.693 R=0.654

1355 Vertical #20 net tow. Sta. #1, off Grand Haven. 43°08.6'N; 86°19.6'W. Lake Mich. Coll: V. E. Noble. 28 April 1967.

1356 Vertical #20 net tow. Sta. #2, off Grand Haven. 43°08.6'N; 86°19.8'W. Lake Mich. Coll: V. E. Noble. 28 April 1967.

1357 Vertical #20 net tow. Sta. #3, off Grand Haven. 43°03.8'N; 86°20.0'W. Lake Mich. Coll: V. E. Noble. 28 April 1967.

1358 Vertical #20 net tow. Sta. #4, off Grand Haven. 43°03.8'N; 86°19.5'W. Lake Mich. Coll: V. E. Noble. 29 April 1967.

1359 Vertical #20 net tow. Sta. #5, off Grand Haven. 43°03.7'N; 86°18.9'W. Lake Mich. Coll: V. E. Noble. 29 April 1967.

1360 Vertical #20 net tow. Sta. #6, off Grand Haven. 43°03.7'N; 86°15.9'W. Lake Mich. Coll: V. E. Noble. 29 April 1967.

1361 Vertical #20 net tow. Sta. #7, off Grand Haven. 43°01.9'N; 86°16.6'W. Lake Mich. Coll: V. E. Noble. 30 April 1967.

1362 Vertical #20 net tow. Sta. #8, off Grand Haven. 43°02.1'N; 86°16.3'W. Lake Mich. Coll: V. E. Noble. 30 April 1967.

1363 Vertical #20 net tow. Sta. #9, off Grand Haven. 43°02.6'N; 86°16.0'W. Lake Mich. Coll: V. E. Noble. 30 April 1967.

1364 Vertical #20 net tow. Sta. #10, off Grand Haven. 43°02.6'N; 86°15.4'W. Lake Mich. Coll: V. E. Noble. 30 April 1967.

1365 Vertical #20 net tow. Sta. #11, off Grand Haven. 43°02.5'N; 86°18.0'W. Lake Mich. Coll: V. E. Noble. 30 April 1967.

1366 Vertical #20 net tow. Inside Grand Haven Piers -A, Mich. Lake Mich. Coll: V. E. Noble. 29 April 1967.

1367 Vertical #20 net tow. Inside Grand Haven Piers -B, Mich. Lake Mich. Coll: V. E. Noble. 29 April 1967.

1368a Vertical #20 net haul. Sta. A-3-E. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. F. Stoermer. 4 May 1967.
48 spp. 31830 spec. H=1.731 R=0.553

1369 Vertical #20 net haul. Sta. A-4-E. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. F. Stoermer. 4 May 1967.
46 spp. 26829 spec. H=1.103 R=0.712

1370 Vertical #20 net haul. Sta. A-6-E. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. F. Stoermer. 3 May 1967.
53 spp. 43445 spec. H=1.349 R=0.660

1371a Vertical #20 net haul. Sta. C-3-E. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. F. Stoermer. 4 May 1967.
40 spp. 43318 spec. H=1.236 R=0.665

1372a Vertical #20 net haul. Sta. C-5-E. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. F. Stoermer. 5 May 1967.
45 spp. 28196 spec. H=1.458 R=0.617

1373 Vertical #20 net haul. Sta. C-7-E. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. F. Stoermer. 5 May 1967.
40 spp. 35058 spec. H=1.011 R=0.726

1374 Vertical #20 net haul. Sta. E-2-E. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. F. Stoermer. 7 May 1967.
59 spp. 33460 spec. H=1.676 R=0.589

1375a Vertical #20 net haul. Sta. E-3-E. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 May 1967.
57 spp. 41559 spec. H=1.418 R=0.649

1376 Vertical #20 net haul. Sta. E-5-E. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. F. Stoermer. 6 May 1967.
55 spp. 35576 spec. H=1.764 R=0.560

1377a Vertical #20 net haul. Sta. GS-67-1. 44°46.9'N; 86°13.7'W. Lake Mich.
Coll: E. F. Stoermer. 9 May 1967.
39 spp. 25265 spec. H=1.462 R=0.601

1378 Vertical #20 net haul. Sta. GS-67-2. 45°00.6N; 85°56.5W. Lake Mich.
Coll: E. F. Stoermer. 9 May 1967.
34 spp. 23781 spec. H=1.693 R=0.520

1379 Vertical #20 net haul. Sta. GS-67-3. 45°04.4N; 85°26.6W. Lake Mich.
Coll: E. F. Stoermer. 9 May 1967.
54 spp. 32312 spec. H=1.748 R=0.562

1380a Vertical #20 net haul. Sta. GS-67-4. 45°25.2N; 85°19.0W. Lake Mich.
Coll: E. F. Stoermer. 9 May 1967.
63 spp. 59470 spec. H=1.872 R=0.548

1381a Vertical #20 net haul. Sta. GS-67-5. 45°30.5N; 85°23.5W. Lake Mich.
Coll: E. F. Stoermer. 10 May 1967.
55 spp. 41926 spec. H=1.783 R=0.555

1382 Vertical #20 net haul. Sta. GS-67-6. 45°33.0N; 85°34.5W. Lake Mich.
Coll: E. F. Stoermer. 10 May 1967.
64 spp. 36026 spec. H=1.553 R=0.626

1383 Vertical #20 net haul. Sta. GS-67-7. 45°34.5N; 85°41.2W. Lake Mich.
Coll: E. F. Stoermer. 10 May 1967.
61 spp. 37408 spec. H=1.855 R=0.549

1384 Vertical #20 net haul. Sta. GS-67-8. 45°44.7N; 85°46.5W. Lake Mich.
Coll: E. F. Stoermer. 10 May 1967.
67 spp. 54095 spec. H=1.651 R=0.607

1385 Vertical #20 net haul. Sta. GS-67-9. 45°54.6N; 86°11.5W. Lake Mich.
Coll: E. F. Stoermer. 10 May 1967.
50 spp. 42471 spec. H=1.660 R=0.576

1386 Vertical #20 net haul. Sta. GS-67-10. 45°34.0N; 86°25.7W. Lake Mich.
Coll: E. F. Stoermer. 12 May 1967.
62 spp. 34810 spec. H=1.614 R=0.609

1387 Vertical #20 net haul. Sta. GS-67-11. 45°31.7N; 86°41.4W. Lake Mich.
Coll: E. F. Stoermer. 12 May 1967.
106 spp. 26248 spec. H=2.075 R=0.555

1388 Vertical #20 net haul. Sta. GS-67-12. 45°47.1N; 86°36.1W. Lake Mich.
Coll: E. F. Stoermer. 12 May 1967.
126 spp. 16575 spec. H=2.212 R=0.543

1389 Vertical #20 net haul. Sta. GS-67-13. 45°43.8N; 86°41.6W. Lake Mich.
Coll: E. F. Stoermer. 12 May 1967.
103 spp. 38783 spec. H=1.644 R=0.645

1390 Vertical #20 net haul. Sta. GS-67-14. 45°40.5N; 86°48.8W. Lake Mich.
Coll: E. F. Stoermer. 12 May 1967.
78 spp. 17030 spec. H=1.823 R=0.582

1391 Vertical #20 net haul. Sta. GS-67-15. 45°36.2N; 86°58.5 W. Lake Mich.
Coll: E. F. Stoermer. 12 May 1967.
66 spp. 20883 spec. H=2.091 R=0.501

1392 Vertical #20 net haul. Sta. GS-67-16. 45°47.4N; 87°02.2W. Lake Mich.
Coll: E. F. Stoermer. 12 May 1967.
93 spp. 32447 spec. H=2.114 R=0.534

1393 Vertical #20 net haul. Sta. GS-67-17. 45°34.0N; 87°09.0W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
71 spp. 36504 spec. H=2.077 R=0.513

1394a Vertical #20 net haul. Sta. GS-67-18. 45°23.5N; 87°17.5W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
108 spp. 58134 spec. H=1.955 R=0.583

1395 Vertical #20 net haul. Sta. GS-67-19. 45°05.0N; 87°32.3W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
82 spp. 85154 spec. H=1.423 R=0.677

1396 Vertical #20 net haul. Sta. GS-67-20. 44°40.2N; 87°52.8W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
78 spp. 135155 spec. H=1.359 R=0.688

1397 Vertical #20 net haul. Sta. GS-67-21. 44°54.7N; 87°25.8W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
70 spp. 152893 spec. H=1.296 R=0.695

1398 Vertical #20 net haul. Sta. GS-67-22. 44°46.6N; 87°17.4W. Lake Mich.
Coll: E. F. Stoermer. 14 May 1967.
77 spp. 32937 spec. H=1.873 R=0.569

1399a Surface #20 net tow. Harbor entrance, Port Washington, Wisconsin.
PW: 43°23.2'N; 87°51.7'W. Coll: E. F. Stoermer. 5 May 1967.
64 spp. 14704 spec. H=2.041 R=0.509

1400a Surface #20 net tow. Harbor entrance, Sheboygan, Wisconsin, Lake Mich.
SB: 43°45.0'N; 87°41.5'W. Coll: E. F. Stoermer. 6 May 1967.
96 spp. 16788 spec. H=2.297 R=0.497

1401 Surface #20 net tow. Harbor entrance, Manitowoc, Wisconsin, Lake Mich.
MO: 44°05.6'N; 87°38.6'W. Coll: E. F. Stoermer. 6 May 1967.
101 spp. 17008 spec. H=2.029 R=0.560

1402 Surface #20 net tow. Harbor entrance, Two Rivers, Wisconsin, Lake Mich.
TR: 44°08.6'N; 87°33.6'W. Coll: E. F. Stoermer. 6 May 1967.
108 spp. 18468 spec. H=2.055 R=0.561

1403 Surface #20 net tow. Harbor entrance, Charlevoix, Michigan, Lake Mich.
CA: 45°19.3'N; 85°15.9'W. Coll: E. F. Stoermer. 10 May 1967.
123 spp. 7653 spec. H=2.859 R=0.406

1404 Surface #20 net tow. Harbor entrance, Manistique, Michigan, Lake Mich.
MQ: 45°56.7'N; 86°14.8'W. Coll: E. F. Stoermer. 10 May 1967.
163 spp. 7872 spec. H=2.327 R=0.543

1405 Surface #20 net tow. Harbor entrance, Escanaba, Michigan, Lake Mich.
ES: 45°44.7'N; 87°02.2'W. Coll: E. F. Stoermer. 12 May 1967.
92 spp. 15504 spec. H=1.534 R=0.661

1406a Surface #20 net tow. Harbor entrance, Green Bay, Wisconsin, Lake Mich.
GB: 44°39.2'N; 87°54.1'W. Coll: E. F. Stoermer. 13 May 1967.
75 spp. 37095 spec. H=0.513 R=0.881

1407 Surface #20 net tow. Harbor entrance, Sturgeon Bay, Wisconsin, Lake Mich.
SM: 44°47.5'N; 87°18.6'W. Coll: E. F. Stoermer. 14 May 1967.
116 spp. 16747 spec. H=2.393 R=0.497

1408a Vertical #20 net tow. Sta. A-3-E. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 23 May 1967.
48 spp. 22363 spec. H=1.694 R=0.562

1409a Vertical #20 net tow. Sta. A-4-E. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 23 May 1967.
32 spp. 33606 spec. H=1.553 R=0.556

1410a Vertical #20 net haul. Sta. A-6-E. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 24 May 1967.
48 spp. 17736 spec. H=1.555 R=0.598

1411a Vertical #20 net haul. Sta. C-3-E. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 31 May 1967.
48 spp. 24373 spec. H=1.558 R=0.597

1412a Vertical #20 net haul. Sta. C-5-E. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 31 May 1967.
44 spp. 23758 spec. H=1.480 R=0.609

1413a Vertical #20 net haul. Sta. C-7-E. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 25 May 1967.
37 spp. 31657 spec. H=1.185 R=0.672

1414a Vertical #20 net haul. Sta. E-2-E. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 28 May 1967.
37 spp. 29775 spec. H=1.363 R=0.623

1415 Vertical #20 net haul. Sta.E-3-E. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 28 May 1967.
38 spp. 44474 spec. H=1.244 R=0.658

1416 Vertical #20 net haul. Sta. E-5-E. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 28 May 1967.
58 spp. 45729 spec. H=1.472 R=0.637

1417 Surface #20 net tow. Harbor entrance, Holland, Michigan, Lake Mich.
HO: 42°46.4'N; 86°12.9'W. Coll: E. Dunster. 22 May 1967.
138 spp. 26748 spec. H=2.574 R=0.478

1418a Surface #20 net tow. Harbor entrance, South Haven, Michigan, Lake Mich.
SH: 42°24.0'N; 86°17.3'W. Coll: E. Dunster. 22 May 1967.
50 spp. 6430 spec. H=1.829 R=0.532

1419a Surface #20 net tow. Harbor entrance, Buffington, Indiana, Lake Mich.
BU: 41°38.8'N; 87°24.6'W. Coll: E. Dunster. 23 May 1967.
42 spp. 5462 spec. H=2.098 R=0.439

1420 Surface #20 net tow. Harbor entrance, Indiana Harbor, Indiana, Lake Mich. IH: 41°40.9'N; 87°26.5'W. Coll: E. Dunster. 23 May 1967.
40 spp. 6620 spec. H=1.938 R=0.475

1421a Surface #20 net tow. Harbor entrance, Calumet Harbor, Indiana, Lake Mich. CH: 41°43.5'N; 87°29.6'W. Coll: E. Dunster. 23 May 1967.
48 spp. 5764 spec. H=2.011 R=0.480

1422a Surface #20 net tow. Harbor entrance, Gary, Indiana, Lake Mich. GA: 41°37.5'N; 87°19.4'W. Coll: E. Dunster. 23 May 1967.
69 spp. 19573 spec. H=2.037 R=0.519

1423 Surface #20 net tow. Harbor entrance, Waukegan, Illinois, Lake Mich. WA: 42°21.7'N; 87°48.8'W. Coll: E. Dunster. 25 May 1967.
80 spp. 23353 spec. H=2.195 R=0.499

1424a Surface #20 net tow. Harbor entrance, Kenosha, Wisconsin, Lake Mich. KN: 42°35.7'N; 87°48.5'W. Coll: E. Dunster. 25 May 1967.
42 spp. 7506 spec. H=2.214 R=0.408

1425 Surface #20 net tow. Harbor entrance, Racine, Wisconsin, Lake Mich. RA: 42°44.1'N; 87°46.3'W. Coll: E. Dunster. 25 May 1967.
41 spp. 11311 spec. H=2.111 R=0.432

1426 Surface #20 net tow. Harbor entrance, Manistee, Michigan, Lake Mich. MS: 44°15.1'N; 86°20.8'W. Coll: E. Dunster. 29 May 1967.
135 spp. 9525 spec. H=2.896 R=0.410

1427 Surface #20 net tow. Harbor entrance, Ludington, Michigan, Lake Mich. LU: 43°57.2'N; 86°27.8'W. Coll: E. Dunster. 29 May 1967.
96 spp. 8260 spec. H=2.726 R=0.403

1428a Surface #20 net tow. Harbor entrance, Muskegon, Michigan, Lake Mich. MU: 43°13.5'N; 86°20.8'W. Coll: E. Dunster. 29 May 1967.
96 spp. 33189 spec. H=1.346 R=0.705

1429a Surface #20 net tow. Harbor entrance, White Lake, Michigan, Lake Mich. WL: 43°22.5'N; 86°25.3'W. Coll: E. Dunster. 29 May 1967.
75 spp. 9421 spec. H=2.399 R=0.444

1430a Surface #20 net tow. Michigan City, Indiana, Lake Mich. MC: 41°43.7'N; 87°54.7'W. Coll: J. Ayers. 12 June 1967.
18 spp. 4053 spec. H=0.969 R=0.665

1431 Vertical #20 net tow. Sta. A-3-E. 42°05'30"N; 86°43'00"W. Lake Mich. Coll: J. Ayers. 12 June 1967.
44 spp. 38837 spec. H=1.760 R=0.535

1432 Vertical #20 net tow. Sta. A-4-E. 42°03'30"N; 87°06'30"W. Lake Mich. Coll: J. Ayers. 13 June 1967.
55 spp. 39148 spec. H=1.876 R=0.532

1433 Vertical #20 net tow. Sta. C-3-E. 42°49'10"N; 86°28'25"W. Lake Mich. Coll: J. Ayers. 17 June 1967.
48 spp. 15482 spec. H=2.321 R=0.400

1434 Vertical #20 net tow. Sta. C-5-E. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: J. Ayers. 17 June 1967.
45 spp. 33436 spec. H=1.453 R=0.618

1435 Vertical #20 net tow. Sta. C-7-E. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: J. Ayers. 13 June 1967.
46 spp. 31673 spec. H=1.695 R=0.557

1436 Vertical #20 net tow. Sta. E-2-E. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: J. Ayers. 15 June 1967.
42 spp. 27636 spec. H=1.894 R=0.493

1437 Vertical #20 net tow. Sta. E-3-E. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: J. Ayers. 15 June 1967.
31 spp. 37153 spec. H=1.293 R=0.623

1438 Vertical #20 net tow. Sta. E-5-E. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: J. Ayers. 14 June 1967.
38 spp. 27540 spec. H=1.307 R=0.641

1439a Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich.
Coll: C. F. Powers. 5 June 1964.
52 spp. 50050 spec. H=1.787 R=0.548

1440a Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich.
Coll: C. F. Powers. 11 July 1964.
46 spp. 27137 spec. H=2.152 R=0.438

1441a Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich.
Coll: C. F. Powers. 24 July 1964.
41 spp. 45399 spec. H=1.842 R=0.504

1442a Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich.
Coll: C. F. Powers. 2 Aug. 1964.
32 spp. 29310 spec. H=1.895 R=0.453

1443 Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich.
Coll: C. F. Powers. 16 Aug. 1964.
23 spp. 50586 spec. H=1.361 R=0.566

1444a Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich.
Coll: C. F. Powers. 19 Sept. 1964.
27 spp. 32989 spec. H=1.523 R=0.538

1445a Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich.
Coll: C. F. Powers. 14 Oct. 1964.
40 spp. 30660 spec. H=1.500 R=0.593

1446a Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 11 July 1967.
45 spp. 40882 spec. H=2.143 R=0.437

1447a Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 11 July 1967.
35 spp. 42752 spec. H=2.284 R=0.358

1448a Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 10 July 1967.
32 spp. 28275 spec. H=1.311 R=0.622

1449a Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 16 July 1967.
64 spp. 26169 spec. H=2.568 R=0.383

1450a Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 16 July 1967.
49 spp. 52515 spec. H=2.278 R=0.415

1451a Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 16 July 1967.
52 spp. 50802 spec. H=2.193 R=0.445

1452a Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 14 July 1967.
68 spp. 46974 spec. H=2.464 R=0.416

1453a Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 15 July 1967.
47 spp. 39563 spec. H=1.843 R=0.521

1454a Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 15 July 1967.
46 spp. 49990 spec. H=1.858 R=0.515

1455 Surface #20 net tow. CH-1, Chicago, Illinois, Lake Mich. Coll: E. Dunster. 10 July 1967.

1504a Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 28 Aug. 1967.
45 spp. 40505 spec. H=1.404 R=0.631

1505 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 28 Aug. 1967.
19 spp. 19406 spec. H=1.484 R=0.496

1506 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 29 Aug. 1967.
17 spp. 19117 spec. H=1.123 R=0.603

1508 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 2 Sept. 1967.
23 spp. 25022 spec. H=1.530 R=0.512

1509 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 2 Sept. 1967.
30 spp. 19814 spec. H=2.066 R=0.393

1510 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 29 Aug. 1967.
25 spp. 31630 spec. H=1.375 R=0.573

1511 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: E. Dunster. 1 Sept. 1967.
59 spp. 32577 spec. H=2.351 R=0.423

1512 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich. Coll: E. Dunster. 1 Sept. 1967.
59 spp. 25468 spec. H=2.396 R=0.412

1513 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: E. Dunster. 31 Aug. 1967.
33 spp. 19734 spec. H=1.813 R=0.482

1520 Surface #20 net tow. Holland, Michigan, Lake Mich. HO: 42°46.4'N; 86°12.9'W. Coll: J. Ayers. 18 Sept. 1967.
76 spp. 21209 spec. H=1.917 R=0.557

1521 Surface #20 net tow. South Haven, Michigan, Lake Mich. SH: 42°24.0'N; 86°17.3'W. Coll: J. Ayers. 18 Sept. 1967.
89 spp. 17332 spec. H=1.451 R=0.677

1522 Surface #20 net tow. Benton Harbor, Michigan, Lake Mich. BH: 42°06.9'N; 86°29.7'W. Coll: J. Ayers. 18 Sept. 1967.
102 spp. 54841 spec. H=1.452 R=0.686

1523a Surface #20 net tow. Racine, Wisconsin, Lake Mich. RA: 42°44.1'N; 87°46.3'W. Coll: J. Ayers. 19 Sept. 1967.
54 spp. 10840 spec. H=1.653 R=0.586

1524 Surface #20 net tow. Milwaukee, Wisconsin, Lake Mich. MI: 43°01.6'N; 87°52.9'W. Coll: J. Ayers. 20 Sept. 1967.
38 spp. 4568 spec. H=1.595 R=0.561

1525a Surface #20 net tow. Port Washington, Wisconsin, Lake Mich. PW: 43° 23.2'N; 87°51.7'W. Coll: J. Ayers. 20 Sept. 1967.
27 spp. 7181 spec. H=1.426 R=0.567

1526 Surface #20 net tow. Manitowoc, Wisconsin, Lake Mich. MO: 44°05.6'N; 87°38.6'W. Coll: J. Ayers. 20 Sept. 1967.
121 spp. 17577 spec. H=2.230 R=0.535

1527 Surface #20 net tow. Two Rivers, Wisconsin, Lake Mich. TR: 44°08.6'N; 87°33.6'W. Coll: J. Ayers. 20 Sept. 1967.
135 spp. 15900 spec. H=1.820 R=0.629

1528a Surface #20 net tow. Sheboygan, Wisconsin, Lake Mich. SB: 43°45.0'N; 87°41.5'W. Coll: J. Ayers. 20 Sept. 1967.
65 spp. 6926 spec. H=2.057 R=0.507

1529 Surface #20 net tow. Kewaunee, Wisconsin, Lake Mich. KW: 44°27.5'N; 87°29.6'W. Coll: J. Ayers. 20 Sept. 1967.
95 spp. 8339 spec. H=2.389 R=0.475

1530a Surface #20 net tow. Frankfort, Michigan, Lake Mich. FR: 44°37.8'N; 86°15.0'W. Coll: J. Ayers. 24 Sept. 1967.
94 spp. 9999 spec. H=1.856 R=0.591

1531 Surface #20 net tow. Grand Haven, Michigan, Lake Mich. GH: 43°03.5'N; 86°15.4'W. Coll: J. Ayers. 25 Sept. 1967.
70 spp. 11830 spec. H=1.762 R=0.585

1532 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich. Coll: J. Ayers. 18 Sept. 1967.
49 spp. 30441 spec. H=1.380 R=0.645

1533 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich. Coll: J. Ayers. 19 Sept. 1967.
49 spp. 21542 spec. H=1.362 R=0.650

1534 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich. Coll: J. Ayers. 19 Sept. 1967.
39 spp. 32233 spec. H=1.433 R=0.609

1535 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich. Coll: J. Ayers. 20 Sept. 1967.
32 spp. 31067 spec. H=1.109 R=0.680

1536 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: J. Ayers. 24 Sept. 1967.
85 spp. 36674 spec. H=2.199 R=0.505

1537a Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich. Coll: J. Ayers. 24 Sept. 1967.
63 spp. 23186 spec. H=2.575 R=0.378

1538a Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: J. Ayers. 23 Sept. 1967.
70 spp. 18103 spec. H=2.003 R=0.529

1539a Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich. Coll: C. F. Powers. 4 Oct. 1967.
31 spp. 19874 spec. H=1.462 R=0.574

1540 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich. Coll: C. F. Powers. 4 Oct. 1967.
41 spp. 20147 spec. H=1.401 R=0.623

1541a Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: E. F. Stoermer. 11 Oct. 1967.
85 spp. 18791 spec. H=1.854 R=0.583

1542 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86"40'00"W. Lake Mich. Coll: E. F. Stoermer. 11 Oct. 1967.
72 spp. 19664 spec. H=2.417 R=0.435

1543 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: E. F. Stoermer. 10 Oct. 1967.
52 spp. 13922 spec. H=1.460 R=0.631

1544 Surface #20 net tow. Muskegon, Michigan, Lake Mich. MU: 43°13.5'N; 86°20.8'W. Coll: E. F. Stoermer. 2 Oct. 1967.
111 spp. 41967 spec. H=0.821 R=0.826

1545 Surface #20 net tow. White Lake, Michigan, Lake Mich. WL: 43°22.5'N; 86°25.3'W. Coll: E. F. Stoermer. 2 Oct. 1967.
159 spp. 14799 spec. H=2.579 R=0.491

1546 Surface #20 net tow. Ludington, Michigan, Lake Mich. LU: 43°57.2'N; 86°27.8'W. Coll: E. F. Stoermer. 2 Oct. 1967.
129 spp. 19993 spec. H=1.155 R=0.762

1547 Surface #20 net tow. Manistee, Michigan, Lake Mich. MS: 44°15.1'N; 86°20.8'W. Coll: E. F. Stoermer. 2 Oct. 1967.
71 spp. 12525 spec. H=1.339 R=0.686

1548 Surface #20 net tow. Charlevoix, Michigan, Lake Mich. CA: 45°19.3'N; 85°15.9'W. Coll: E. F. Stoermer. 3 Oct. 1967.
50 spp. 7861 spec. H=1.328 R=0.661

1549 Surface #20 net tow. Manistique, Michigan, Lake Mich. MQ: 45°56.7'N; 86°14.8'W. Coll: E. F. Stoermer. 4 Oct. 1967.
85 spp. 7297 spec. H=2.287 R=0.485

1550 Surface #20 net tow. Marinette, Wisconsin and Menominee, Michigan. Green Bay. MR: 45°05.8'N; 87°35.1'W. Coll: E. F. Stoermer. 5 Oct. 1967.
233 spp. 8071 spec. H=3.574 R=0.344

1551 Surface #20 net tow. Escanaba, Michigan, Little Bay De Noc. ES: 45° 44.7'N; 87°02.2'W. Coll: E. F. Stoermer. 5 Oct. 1967.
77 spp. 12519 spec. H=1.980 R=0.544

1552 Surface #20 net tow. Sturgeon Bay, Wisconsin, Lake Mich. SM: 44° 47.5'N; 87°18.6'W. Coll: E. F. Stoermer. 6 Oct. 1967.
88 spp. 15145 spec. H=1.850 R=0.587

1553 Surface #20 net tow. Sturgeon Bay, Wisconsin, Green Bay. SG: 44° 50.1N; 87°22.9'W. Coll: E. F. Stoermer. 6 Oct. 1967.
114 spp. 13616 spec. H=2.024 R=0.573

1554a Vertical #20 net tow. Sta. GS-1A. 44°46.9'N; 86°13.7'W. Lake Mich. Coll: E. F. Stoermer. 3 Oct. 1967.
91 spp. 28106 spec. H=2.212 R=0.510

1555 Vertical #20 net tow. Sta. GS-2A. 45°00.6'N; 85°56.5'W. Lake Mich. Coll: E. F. Stoermer. 3 Oct. 1967.
81 spp. 28320 spec. H=1.973 R=0.551

1556 Vertical #20 net tow. Sta. GS-3A. 45°04.4'N; 85°26.6'W. Lake Mich. Coll: E. F. Stoermer. 3 Oct. 1967.
56 spp. 19177 spec. H=1.767 R=0.561

1557 Vertical #20 net tow. Sta. GS-4A. 45°25.2'N; 85°19.0'W. Lake Mich. Coll: E. F. Stoermer. 3 Oct. 1967.
81 spp. 26760 spec. H=1.705 R=0.612

1558 Vertical #20 net tow. Sta. GS-5A. 45°30.5'N; 85°23.5'W. Lake Mich. Coll: E. F. Stoermer. 4 Oct. 1967.
69 spp. 25228 spec. H=1.775 R=0.581

1559 Vertical #20 net tow. Sta. GS-7A. 45°34.5'N; 85°41.2'W. Lake Mich.
Coll: E. F. Stoermer. 4 Oct. 1967.
68 spp. 28594 spec. H=1.682 R=0.601

1560 Vertical #20 net tow. Sta. GS-8A. 45°44.7'N; 85°46.5'W. Lake Mich.
Coll: E. F. Stoermer. 4 Oct. 1967.
63 spp. 21173 spec. H=1.992 R=0.519

1561 Vertical #20 net tow. Sta. GS-9A. 45°54.6'N; 86°11.5'W. Lake Mich.
Coll: E. F. Stoermer. 4 Oct. 1967.
49 spp. 17037 spec. H=1.859 R=0.522

1562 Vertical #20 net tow. Sta. GS-10A. 45°34.0'N; 86°25.7'W. Lake Mich.
Coll: E. F. Stoermer. 5 Oct. 1967.
54 spp. 40534 spec. H=1.882 R=0.528

1563 Vertical #20 net tow. Sta. GS-11A. 45°31.7'N; 86°41.4'W. Lake Mich.
Coll: E. F. Stoermer. 5 Oct. 1967.
60 spp. 42766 spec. H=1.711 R=0.582

1564 Vertical #20 net tow. Sta. GS-12A. 45°47.1'N; 86°36.1'W. Lake Mich.
Coll: E. F. Stoermer. 5 Oct. 1967.
46 spp. 60756 spec. H=1.066 R=0.722

1565 Vertical #20 net tow. Sta. GS-13A. 45°43.8'N; 86°41.6'W. Lake Mich.
Coll: E. F. Stoermer. 5 Oct. 1967.
155 spp. 19722 spec. H=1.653 R=0.672

1566 Vertical #20 net tow. Sta. GS-14A. 45°40.5'N; 86°48.8'W. Green Bay.
Coll: E. F. Stoermer. 5 Oct. 1967.
70 spp. 54510 spec. H=1.493 R=0.649

1567 Vertical #20 net tow. Sta. GS-15A. 45°36.2'N; 86°58.5'W. Green Bay.
Coll: E. F. Stoermer. 5 Oct. 1967.
115 spp. 62984 spec. H=1.832 R=0.614

1568 Vertical #20 net tow. Sta. GS-16A. 45°47.4'N; 87°02.2'W. Little Bay De Noc. Coll: E. F. Stoermer. 5 Oct. 1967.
73 spp. 69301 spec. H=1.517 R=0.646

1569 Vertical #20 net tow. Sta. GS-17A. 45°34.0'N; 87°09.0'W. Green Bay.
Coll: E. F. Stoermer. 5 Oct. 1967.
106 spp. 67273 spec. H=1.685 R=0.639

1570 Vertical #20 net tow. Sta. GS-18A. 45°23.5'N; 87°17.5'W. Green Bay.
Coll: E. F. Stoermer. 5 Oct. 1967.
57 spp. 10084 spec. H=1.813 R=0.552

1571 Vertical #20 net tow. Sta. GS-19A. 45°05.1'N; 87°32.3'W. Green Bay.
Coll: E. F. Stoermer. 6 Oct. 1967.
102 spp. 170827 spec. H=1.233 R=0.733

1572 Vertical #20 net tow. Sta. GS-20A. 44°40.2'N; 87°52.9'W. Green Bay.
Coll: E. F. Stoermer. 6 Oct. 1967.
66 spp. 110952 spec. H=1.146 R=0.727

1573 Vertical #20 net tow. Sta. GS-21A. 44°55.3'N; 87°26.0'W. Green Bay. Coll: E. F. Stoermer. 6 Oct. 1967.
91 spp. 89293 spec. H=1.423 R=0.685

1574 Vertical #20 net tow. Sta. GS-22A. 44°46.6'N; 87°17.2'W. Lake Mich. Coll: E. F. Stoermer. 6 Oct. 1967.
161 spp. 34766 spec. H=2.155 R=0.576

1575 Vertical #20 net tow. Sta. GS-28A. 44°52.2'N; 87°39.0'W. Green Bay. Coll: E. F. Stoermer. 6 Oct. 1967.
98 spp. 77508 spec. H=1.465 R=0.680

1580 Surface #20 net tow. Indiana Harbor, Indiana, Lake Mich. Coll: J. Ayers. 8 Nov. 1967.

1581 Surface #20 net tow. Gary, Indiana, Lake Mich. Coll: J. Ayers. 8 Nov. 1967.

1582 Surface #20 net tow. Calumet Harbor, Indiana, Lake Mich. Coll: J. Ayers. 10 Nov. 1967.

1583 Surface #20 net tow. Michigan City Harbor, Indiana, Lake Mich. Coll: J. Ayers. 10 Nov. 1967.

1584 Surface #20 net tow. Chicago Harbor, Illinois, Lake Mich. Coll: J. Ayers. 10 Nov. 1967.

1589 Vertical #20 net tow. 1/4 mi west of GH pierhead. Lake Mich. Coll: E. Dunster. 19 March 1968.

1590 Vertical #20 net tow. 2.8 mi N GH pierhead, 3/4 mi from shore. Lake Mich. Coll: E. Dunster. 19 March 1968.

1591 Vertical #20 net tow. Open water area in center of ice flow 1 1/4 mi from shore. Lake Mich. Coll: E. Dunster. 19 March 1968.

1592 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich. Coll: E. Dunster. 26 March 1968.

1593 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich. Coll: E. Dunster. 26 March 1968.

1594 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich. Coll: E. Dunster. 26 March 1968.

1595 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich. Coll: E. Dunster. 5 April 1968.

1596 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich. Coll: E. Dunster. 16 April 1968.

1597 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich. Coll: E. Dunster. 5 April 1968.

1598 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich. Coll: E. Dunster. 16 April 1968.

1599 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 5 April 1968.

1600 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1601 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 5 April 1968.

1602 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 17 April 1968.

1603 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. Dunster. 3 April 1968.

1604 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. Dunster. 17 April 1968.

1605 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 3 April 1968.

1606 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: J. Ayers. 13 June 1967.

1607 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 17 April 1968.

1608 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1609 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1610 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1611 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 2 April 1968.

1612 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1613 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 2 April 1968.

1614 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1615 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 2 April 1968.

1616 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 17 April 1968.

1617 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 2 April 1968.

1618 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich. Coll: E. Dunster. 17 April 1968.

1619 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich. Coll: E. Dunster. 22 April 1968.

1620 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: E. Dunster. 22 April 1968.

1621 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich. Coll: E. Dunster. 22 April 1968.

1622 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich. Coll: E. Dunster. 22 April 1968.

1623 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: E. Dunster. 21 April 1968.

1624 Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich. Coll: E. Dunster. 21 April 1968.

1625 One minute surface #20 net tow 1 mile from Grand Haven, Michigan pierheads bearing 260°. Sta. 1. Lake Mich. Coll: E. F. Stoermer. 7 May 1968.

1626 One minute surface #20 net tow 2 miles offshore from Grand Haven, Michigan pierheads bearing 260°. Sta. 2. Lake Mich. Coll: E. F. Stoermer. 7 May 1968.

1627 One minute surface #20 net tow 3 miles offshore from Grand Haven, Michigan pierheads bearing 260°. Sta. 3. Lake Mich. Coll: E. F. Stoermer. 7 May 1968.

1628 One minute surface #20 net tow 4 miles offshore from Grand Haven, Michigan pierheads bearing 260°. Sta. 4. Lake Mich. Coll: E. F. Stoermer. 7 May 1968.

1629 One minute surface #20 net tow 5 miles from Grand Haven, Michigan pierheads bearing 260°. Sta. 5. Lake Mich. Coll: E. F. Stoermer. 7 May 1968.

1630 Surface #20 net tow in Port Sheldon thermal discharge. Coll: E. F. Stoermer. 7 May 1968.

1631 Surface #20 net tow in Muskegon, Michigan plume 1/2 mi from pierheads. Coll: E. F. Stoermer. 7 May 1968.

1632 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich. Coll: E. Dunster. 13 May 1968.

1633 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich. Coll: E. Dunster. 13 May 1968.

1634 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich. Coll: E. Dunster. 13 May 1968.

1635 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1636 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1637 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1638 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1639 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1640 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1641 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1642 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1643 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1644 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1645 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1646 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1647 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1648 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1649 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1650 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1651 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: E. Dunster. 15 May 1968.

1652 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 15 May 1968.

1653 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 15 May 1968.

1654 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich.
Coll: E. Dunster. 15 May 1968.

1655 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 15 May 1968.

1656 Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich.
Coll: E. Dunster. 15 May 1968.

1657 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich.
Coll: E. Dunster. 15 July 1968.

1658 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich.
Coll: E. Dunster. 15 July 1968.

1659 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 15 July 1968.

1660 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 16 July 1968.

1661 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. Dunster. 16 July 1968.

1662 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 16 July 1968.

1663 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 15 July 1968.

1664 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 15 July 1968.

1665 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 15 July 1968.

1666 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 15 July 1968.

1667 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 15 July 1968.

1668 Vertical #20 net tow. Sta. C-6. 42°47'50"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 16 July 1968.

1669 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 16 July 1968.

1670 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: E. Dunster. 18 July 1968.

1671 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 18 July 1968.

1672 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 17 July 1968.

1673 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich.
Coll: E. Dunster. 17 July 1968.

1674 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 17 July 1968.

1675 Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich.
Coll: E. Dunster. 17 July 1968.

1676 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich.
Coll: E. Dunster. 6 Aug. 1968.

1677 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich.
Coll: E. Dunster. 6 Aug. 1968.

1678 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 6 Aug. 1968.

1679 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 7 Aug. 1968.

1680 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. Dunster. 7 Aug. 1968.

1681 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 7 Aug. 1968.

1682 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 6 Aug. 1968.

1683 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 6 Aug. 1968.

1684 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 6 Aug. 1968.

1685 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 6 Aug. 1968.

1686 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 6 Aug. 1968.

1687 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 8 Aug. 1968.

1688 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 8 Aug. 1968.

1689 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 9 Aug. 1968.

1690 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich.
Coll: E. Dunster. 9 Aug. 1968.

1691 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 9 Aug. 1968.

1692 Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich.
Coll: E. Dunster. 9 Aug. 1968.

1693 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich.
Coll: E. Dunster. 12 Sept. 1968.

1694 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich.
Coll: E. Dunster. 12 Sept. 1968.

1695 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 12 Sept. 1968.

1696 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 13 Sept. 1968.

1697 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. Dunster. 13 Sept. 1968.

1698 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 13 Sept. 1968.

1699 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 11 Sept. 1968.

1700 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 11 Sept. 1968.

1701 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 12 Sept. 1968.

1702 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 12 Sept. 1968.

1703 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 12 Sept. 1968.

1704 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 13 Sept. 1968.

1705 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 13 Sept. 1968.

1706 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1707 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1708 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1709 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1710 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1711 Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1712 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1713 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1714 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1715 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1716 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1717 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1718 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1719 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1720 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1721 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1722 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1723 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1724 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1725 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: E. F. Stoermer. 11 Oct. 1968.

1726 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. F. Stoermer. 11 Oct. 1968.

1727 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. F. Stoermer. 11 Oct. 1968.

1728 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich.
Coll: E. F. Stoermer. 11 Oct. 1968.

1729 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. F. Stoermer. 11 Oct. 1968.

1730 Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich.
Coll: E. F. Stoermer. 10 Oct. 1968.

1731 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 8 Nov. 1968.

1732 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 13 Nov. 1968.

1733 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 13 Nov. 1968.

1734 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 10 Nov. 1968.

1735 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 10 Nov. 1968.

1736 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 10 Nov. 1968.

1737 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 10 Nov. 1968.

1738 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 10 Nov. 1968.

1739 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 10 Nov. 1968.

1740 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 10 Nov. 1968.

1741 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: E. Dunster. 9 Nov. 1968.

1742 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 9 Nov. 1968.

1743 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 9 Nov. 1968.

1744 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich.
Coll: E. Dunster. 9 Nov. 1968.

1800 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: E. Dunster. 9 Aug. 1968.

1801 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 9 Aug. 1968.

1802 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich.
Coll: J. Ayers. 24 April 1969.

1803 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich.
Coll: J. Ayers. 25 April 1969.

1804 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: J. Ayers. 25 April 1969.

1805 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: J. Ayers. 25 April 1969.

1806 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: J. Ayers. 25 April 1969.

1807 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: J. Ayers. 25 April 1969.

1808 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: J. Ayers. 23 April 1969.

1809 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: J. Ayers. 23 April 1969.

1810 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: J. Ayers. 23 April 1969.

1811 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: J. Ayers. 26 April 1969.

1812 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: J. Ayers. 26 April 1969.

1813 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: J. Ayers. 27 April 1969.

1814 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: J. Ayers. 27 April 1969.

1815 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: J. Ayers. 27 April 1969.

1816 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich.
Coll: J. Ayers. 27 April 1969.

1817 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: J. Ayers. 27 April 1969.

1818 Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich. Coll: J. Ayers. 27 April 1969.

ANSP 60973 Lake Michigan. 1876.
88 spp. 4234 spec. H=2.065 R=0.539

ANSP 3540 Diatomaceae. Chicago Water Supply. Coll: B. W. Thomas. 11 May 1879.
66 spp. 21463 spec. H=1.539 R=0.633

ANSP 3541 Chicago Water Supply. Coll: B. W. Thomas. 1 Feb. 1881.
89 spp. 10223 spec. H=1.765 R=0.607

ANSP 3507 Chicago Water Supply. Coll: B. W. Thomas. 19 Feb. 1881.
38 spp. 8834 spec. H=1.159 R=0.681

ANSP 46910a Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239246. Coll: K. E. Damann. Oct. 1945.
62 spp. 91551 spec. H=1.282 R=0.689

ANSP 46921a Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239302. Coll: K. E. Damann. 23 Nov. 1945.
106 spp. 154634 spec. H=1.801 R=0.614

ANSP 46908a Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239241. Coll: K. E. Damann. Dec. 1945.
32 spp. 9932 spec. H=1.762 R=0.492

ANSP 46917a Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239297. Coll: K. E. Damann. 12 Jan. 1946.
108 spp. 360701 spec. H=1.640 R=0.650

ANSP 46915a Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239277. Coll: K. E. Damann. 20 Feb. 1946.
87 spp. 17575 spec. H=1.982 R=0.556

ANSP 46914a Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239263. Coll: K. E. Damann. 19 April 1946.
103 spp. 93661 spec. H=2.055 R=0.557

ANSP 46924a Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239315. Coll: K. E. Damann. 10 May 1946.
113 spp. 141756 spec. H=1.777 R=0.624

ANSP 46923a Plankton tow in Lake Mich. From Field Museum Sheet #1239312. Coll: K. E. Damann. 20 Nov. 1946.
104 spp. 45758 spec. H=2.103 R=0.547

ANSP 46920a Plankton tow in Lake Mich. From Field Museum Sheet #1239301. Coll: K. E. Damann. 20 Dec. 1946.
110 spp. 324569 spec. H=1.227 R=0.739

ANSP 46905a Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239231. Coll: K. E. Damann. Jan. 1947.
82 spp. 81596 spec. H=1.631 R=0.630

ANSP 46909a Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239244. Coll: K. E. Damann. March 1947.
96 spp. 21963 spec. H=1.942 R=0.575

ANSP 46912a Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239257. Coll: K. E. Damann. April 1947.
44 spp. 8698 spec. H=1.851 R=0.511

ANSP 46916a Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239296. Coll: K. E. Damann. 4 May 1947.
122 spp. 294734 spec. H=2.059 R=0.571

ANSP 46906a Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239232. Coll: K. E. Damann. May 1947.
111 spp. 150672 spec. H=2.428 R=0.485

ANSP 46919a Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239300. Coll: K. E. Damann. 5 June 1947.
130 spp. 65909 spec. H=2.534 R=0.479

ANSP 46907a Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239234. Coll: K. E. Damann. July 1947.
106 spp. 202793 spec. H=2.083 R=0.553

ANSP 46913 Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239258. Coll: K. E. Damann. 6 Aug. 1947.
36 spp. 9562 spec. H=0.947 R=0.736

ANSP 46922a Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239309. Coll: K. E. Damann. 21 Aug. 1947.
136 spp. 206338 spec. H=1.859 R=0.622

ANSP 46758a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120598. Coll: E. S. Ford. 5 June 1937.
154 spp. 28042 spec. H=2.595 R=0.485

ANSP 46771a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120613. Coll: E. S. Ford. 11 June 1937.
63 spp. 42062 spec. H=1.821 R=0.561

ANSP 46743a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120580. Coll: E. S. Ford. 20 June 1937.
92 spp. 23354 spec. H=2.095 R=0.537

ANSP 46745a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120584. Coll: E. S. Ford. 3 July 1937.
34 spp. 4785 spec. H=1.878 R=0.467

ANSP 46770a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120612. Coll: E. S. Ford. 9 July 1937.
72 spp. 16768 spec. H=1.642 R=0.616

ANSP 46764a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120606. Coll: E. S. Ford. 17 July 1937.
155 spp. 12410 spec. H=2.570 R=0.490

ANSP 46757a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120597. Coll: E. S. Ford. 25 July 1937.
141 spp. 20771 spec. H=1.752 R=0.646

ANSP 46747a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120586. Coll: E. S. Ford. 1 Aug. 1937.
156 spp. 40397 spec. H=1.733 R=0.657

ANSP 46763a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120605. Coll: E. S. Ford. 23 Aug. 1937.
128 spp. 4928 spec. H=2.571 R=0.470

ANSP 46765a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120607. Coll: L. H. Trffany. 2nd Daily. 30 Aug. 1937.
59 spp. 17930 spec. H=1.486 R=0.636

ANSP 46769a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120611. Coll: L. H. Trffany. 7 Sept. 1937.
29 spp. 4606 spec. H=1.334 R=0.604

ANSP 46752a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120591. Coll: E. S. Ford. 15 Sept. 1937.
113 spp. 4594 spec. H=2.229 R=0.528

ANSP 46760a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120602. Coll: W. A. Daily. 22 Sept. 1937.
75 spp. 20309 spec. H=1.723 R=0.601

ANSP 46750a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120589. Coll: W. A. Daily. 24 Sept. 1937.
90 spp. 21217 spec. H=1.872 R=0.584

ANSP 46744a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120583. Coll: W. A. Daily. 6 Oct. 1937.
73 spp. 20504 spec. H=1.705 R=0.603

ANSP 46748a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120587. Coll: W. A. Daily. 13 Oct. 1937.
83 spp. 4684 spec. H=1.169 R=0.735

ANSP 46767a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120609. Coll: W. A. Daily. 27 Oct. 1937.
104 spp. 25851 spec. H=1.329 R=0.714

ANSP 46749a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120588. Coll: W. A. Daily. 12 March 1938.
71 spp. 8239 spec. H=1.829 R=0.571

ANSP 46768a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120610. Coll: W. A. Daily. 16 March 1938.
109 spp. 6803 spec. H=1.661 R=0.646

ANSP 46762a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120604. Coll: W. A. Daily. 18 March 1938.
107 spp. 4534 spec. H=2.210 R=0.527

ANSP 46751a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120590. Coll: W. A. Daily. 30 March 1938.
63 spp. 8956 spec. H=1.615 R=0.610

ANSP 46772a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120614. Coll: W. A. Daily. 18 April 1938.
34 spp. 14090 spec. H=1.361 R=0.614

ANSP 46756a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120596. Coll: W. A. Daily. 27 April 1938.
71 spp. 59557 spec. H=1.772 R=0.584

ANSP 46759a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120601. Coll: W. A. Daily. 19 May 1938.
63 spp. 29620 spec. H=0.938 R=0.774

ANSP 46761a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120603. Coll: W. A. Daily. 27 May 1938.
72 spp. 36692 spec. H=1.669 R=0.610

ANSP 46766a Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120608. Coll: K. Seamann. 14 Dec. 1938.
58 spp. 6312 spec. H=2.121 R=0.478

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